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Ontario
Energy
Board

ONTARIO HYDRO

BULK POWER RATES FOR 1983

H.R.11

August 31, 1982

[redacted]

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REPORT TO THE

MINISTER OF ENERGY

ONTARIO HYDRO

BULK POWER RATES FOR 1983

H.R.11

August 31, 1982

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Energy
Board

14 Carlton Street
Toronto, Ontario
M5B 1J2

August 31, 1982

The Honourable Robert Welch, Q.C.
Minister of Energy
Legislative Building, Room 180
Queen's Park
Toronto, Ontario
M7A 1A2

Dear Mr. Minister:

In accordance with a letter of reference dated February 12, 1982, the Ontario Energy Board conducted hearings to investigate, examine and report on the proposal of Ontario Hydro, dated February 11, 1982, to change its rates or charges to its customers effective January 1, 1983.

The attached report of the Board is hereby respectfully submitted.

ONTARIO ENERGY BOARD

H. R. Chatterson
Presiding Member

J. R. Dunn
Member

R. R. Perdue
Member

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Letter of Reference from the Minister of Energy to the Chairman, Ontario Energy Board, dated February 12, 1982

Letter from Ontario Hydro to the Minister of Energy dated March 8, 1982

B. List of Witnesses

C. Views of the Participants

INTRODUCTION

Under cover of a letter dated February 11, 1982, Ontario Hydro ("Hydro" or the "Corporation") forwarded to the Minister of Energy (the "Minister") proposals which would increase net revenue by $554 million for the calendar year 1983 over 1982. It was expected that $110 million of the increase would be from higher sales and $444 million would be realized through proposed rate increases. A copy of this letter is attached as Appendix 'A'.

By letter dated February 12, 1982, the Minister referred the Hydro submission to the Ontario Energy Board (the "Board" or the "OEB"). A copy of this letter (the "letter of reference" or the "reference") is also included in Appendix 'A'.

A further letter from Ontario Hydro dated March 8, 1982, was directed to the Minister and attached thereto were the proposed rates. The proposed rates incorporated rate making policy changes which would seasonally differentiate bulk power rates to municipal distributing utilities and to the large industrial customers with more than 5,000 kilowatts ("KW") of demand. This letter is also attached as part of Appendix 'A'.

Hydro said the proposed rate changes would result in an average increase of about 13.0 percent for municipal utilities (of which there are 324) and about 14.8 percent for the direct industrial customers (of which there are approximately 100). In addition to bulk sales revenue, Hydro has reported the total revenue requirement from rural retail sales in this submission. The revenue from rural retail sales, including distribution costs and the allocation of certain non common costs, is expected to increase by 19.4 percent.

The reference from the Minister gave direction to the Board as to the nature and scope of the investigation, examination and subsequent report. The Board was directed to report on the extent to which Ontario Hydro has fairly distributed its revenue requirement for 1983 between its bulk power customers and has kept this as low as feasible -- consistent with the maintenance of financial soundness and quality of service while maintaining a capability to attract capital at favourable rates. Furthermore, the appropriate level of net income was to be assessed, mindful of the desire to maintain stability in rate increases. It was also suggested that the principles of electricity costing and pricing were resolved during H.R.5 and should, therefore, not need re-examination. In accordance with past practice, system expansion was excluded from investigation during this proceeding.

Board members assigned to the hearing consisted of H. R. Chatterson, Presiding Member, J. R. Dunn and R. R. Perdue. D. H. Rogers was retained as Board

Counsel. Members of Board staff assigned to the hearing were G. L. Cooke, as Case Manager, assisted by R. A. Cappadocia, and C. J. Mackie.

The Board, in keeping with past practice, issued a Procedural Order dated February 17, 1982, which gave Hydro instructions as to service and publication of the Notice of Hearing. The Notice of Hearing contained instructions to parties intending to intervene; notice of the pre-hearing conference, held on March 30, 1982, and directions to all parties as to prefiling of evidence. The order also set the date for commencement of the hearing which was April 21, 1982. The proceedings continued until June 30, after which argument was received.

Those from whom Notices of Intention to Intervene had been received by the Board Secretary as at the date of commencement of the hearing were:

1. Association of Major Power Consumers in Ontario ("AMPCO")
2. Belleville Utilities Commission
3. The Consumers' Gas Company Ltd.
4. Eastern Steelcasting
5. Energy Probe
6. The Exolon Company of Canada, Ltd.
7. The Federation of Ontario Cottagers' Association Inc.
8. Hydro Electric Commission of Aurora

9. Hydro Electric Commission of the Town of Markham
10. Hydro Mississauga
11. Hydro Electric Commission of the City of Ottawa
12. Hydro Electric Commission of the Town of Richmond Hill
13. Inco Metals Company ("INCO")
14. IVACO Inc. ("IVACO")
15. Lake Ontario Steel Company Limited ("Lake Ontario Steel" or "LASCO")
16. Mrs. Irene Mooney
17. North York Hydro
18. Northern and Central Gas Corporation Limited ("N&C Gas")
19. Ontario Federation of Agriculture ("OFA")
20. Ontario Municipal Electric Association ("OMEA")
21. Ontario Natural Gas Association ("ONGA")
22. Public Utilities Commission of the City of Kingston
23. Public Utilities Commission of the Borough of Scarborough
24. Toronto Hydro
25. Union Carbide Canada Limited
26. Union Gas Limited ("Union Gas")
27. Urban Development Institute ("UDI")

In addition to these filed interventions, the Board received numerous letters expressing concern about the magnitude of the rate increase and/or the restructuring of the rate form.

The hearing commenced on April 21 as scheduled. Those who entered appearances on the opening day were:

- D. H. Rogers, Counsel for the Board
- P. Genest, Q.C. and I. Blue, Counsel for Ontario Hydro
- R. W. Macaulay, Q.C. and J. Davies, Counsel for AMPCO
- A. Schwartz, Counsel for OMEA
- D. Poch, Counsel for Energy Probe
- R. J. Howe, Counsel for ONGA
- I. Samis, appearing for N&C Gas
- A. Butler, appearing for Union Gas
- F. Reilly, Counsel for INCO
- J. Ryan, Counsel for IVACO & LASCO
- J. Jarvalt, Counsel for OFA

Dr. C. Rhodes, on behalf of UDI, sought and was granted late intervention.

James J. Gordon, M.P.P. for Sudbury, W. Duncan, on behalf of the Federation of Ontario Cottagers' Association Inc., Irene Mooney of Kingston, and Muriel Church of Sarnia Hydro Electric Commission, sought and were granted permission to make statements before the Board during the proceeding.

A complete list of all witnesses, sponsored by the various intervenors in these proceedings, is attached as Appendix 'B'.

The views of all participants -- including those making oral presentations and those expressing concerns by letter -- were carefully considered by the Board in reaching its conclusions. However, only the views of intervenors who submitted argument are summarized in this report. This summary is attached as Appendix 'C'.

In arriving at its conclusion, the Board has also been guided by:

- o the costing and pricing principles arising out of the Electricity Costing and Pricing ("ECAPS") investigations during H.R.5;
- o the need for new concepts in the development of a philosophy that will accommodate time-of-use pricing;
- o the need to develop rates which will be reasonably stable but which will improve "cost tracking" yet at the same time will be just and reasonable and not unduly discriminatory;
- o the guidelines, which were set out in the letter of reference from the Minister.

The Board appreciates the efforts of Mr. Rogers and Board staff, and indeed all other participants, in performing a thorough examination of the evidence -- all of which was most helpful to the Board in its subsequent deliberations.

THE REVENUE REQUIREMENT

The net revenue requirement for 1983, after deducting an estimated $551 million of secondary sales revenue, is forecast by Ontario Hydro to be $3,617.3 million. Of this forecast amount, $2,357.1 million is attributed to the municipal utilities; $554.8 million is attributed to the direct industrial customers; and $705.4 million is attributed to the rural retail customers served through the rural distribution system.

Details of the cost components of the increased revenue requirement were set out in Table 5A2 of Exhibit 5 which is reproduced as Table 1 on the next page. It will be noted that the largest single component is the proposed increase in net income of some $172 million. Energy variable costs are forecast to increase by $153 million and, coincidentally, fixed charges are expected to increase by the same amount. Operating, Maintenance and Administration ("OM&A") costs are predicted to increase by $142 million. Revenue from export sales during 1983 is expected to increase by some $68.0 million over the 1982 level and thereby to reduce the revenue requirement by that amount. All of which resulted in an increase in the proposed net revenue requirement, after rounding, of some $553 million.

On May 14, 1982, Hydro filed a statement which summarized the updating of financial forecasts and

Table 1

BULK POWER REVENUE REQUIREMENTS
$millions

	1981	1982	1983
Energy Variable			
Fuel—fossil	733	911	1,008
—nuclear	92	160	176
—water rentals	22	26	29
—internal transfers	(62)	(92)	(86)
Sub total fuel	785	1,005	1,128
Commissioning	3	2	23
Power purchases	120	119	126
Nuclear agreement-payback	64	67	69
Total Energy Variable	972	1,193	1,346
Operation, maintenance and administration	741	882	1,024
Fixed Charges			
Interest and foreign exchange	704	737	823
Depreciation	325	349	416
Total Fixed Charges	1,029	1,086	1,239
Net Income			
Debt retirement	152	166	183
Stabilization of rates	284	220	375
Total Net Income	436	386	558
GROSS REVENUE REQUIREMENT	3,178	3,547	4,168
Secondary	(430)	(483)	(551)
NET REVENUE REQUIREMENT	2,748	3,064	3,617

Source: Exhibit 5, Table 5A2, Page 25

indicated what the impact would be on net income if the rate proposal stands and its most recent expectation of financial trends materialize. This impact statement was subsequently revised and indicated that the original forecast of net income would decrease by $45 million. Interest coverage would consequently decline to 1.25 and the debt ratio would be .842. The Hydro argument highlighted these circumstances to indicate a downside risk in expected net income but did not revise its submission. However, in concluding its argument, Hydro did appeal to the Board to recognize the probable shortfall in forecasted revenue and to restore its planned net income.

It is interesting to note that the financial forecast upon which the Hydro proposals were primarily based, was dated January 15, 1982. The forecast itself is based on the October 1981 Economic Outlook; the December 1981 Financial Markets Outlook; the 1982 Planning Load Forecast; the 1981 Bulk Electricity System Development Plan and the 1982-1984 Work Program Plans and Budgets. Because of the scheduling time required for preparation of evidence for this particular hearing, and the unusual economic environment, the Board is concerned that much of the data upon which the proposed rates for 1983 were based are out of date. Subsequent sections of this report will attempt to update such data.

Policy Matters

In its bulk power rate proposal, Hydro identified several policy matter changes which when broadly defined, included contingency provisions, as well as accounting and cost allocation changes which may or may not impact on the overall revenue requirement for 1983.

Rural Residential Rate Assistance

As required by the change in the Power Corporation Act, the Rural Residential Rate Assistance (which maintains a rate differential of 15 percent between year round residential customers served through the Hydro rural retail system and residential customers served by municipal utilities) requires a transfer of costs from the rural residential class to the municipal utilities and the Power District. The net Rural Residential Rate Assistance under Hydro's existing cost allocation is $34 million. Under the proposed cost allocation system it would be $49 million.

The OFA objected to the common cost treatment of the Rural Residential Rate Assistance and argued that the rural residential class should pay any part of this cost. Hydro argued that it is reasonable to recover the cost of such a social program from all of its customers.

This being primarily a transfer of costs, there is no impact on the overall revenue requirement. The Board considers the proposed treatment to be equitable and therefore is recommending its acceptance.

Accounting Policy on Foreign Exchange

Hydro's current accounting policy on foreign exchange translates the principal amount of foreign debt at the exchange rate in effect when the debt was issued; as well, it recognizes gains or losses only when the debt is due within one year.

Hydro's proposed policy would translate the principal amount of foreign debt at the exchange rate on the balance sheet date. Unrealized exchange gains or losses -- that is, the change in translated value over the accounting period -- will be deferred and amortized over the remaining life of the debt, with the amortized amount to be included in the revenue requirement each year.

The estimated cost based on straight line amortization for the three years 1983 to 1985 was a total of $93 million. However, Hydro proposed a phase in over three years, with a revenue requirement of $15 million in 1983.

Hydro subsequently decided, with the concurrence of its auditors, that a sinking fund provision would be superior since it would moderate the impact (as compared to the straight line method), and would be consistent with other interest enhanced provision accounts for future obligations (such as irradiated fuel). Consequently, the revenue requirement in 1983 was increased by $17 million to a total of $32 million, largely because there was no provision for phasing in the sinking fund method.

AMPCO pointed out that Hydro made a similar proposal in 1978 based on an earlier Canadian Institute of Chartered Accountants ("CICA") draft policy and that both were set aside following the Board's pronouncement that it "would be premature, when the emphasis has been so heavily upon constraint. for it [Ontario Hydro] to add $30 million [to the revenue requirement] based on a preliminary CICA ruling".

AMPCO, noting that Hydro was again speculating on the early issue and approval of a CICA exposure draft, as well as the need to conform to it, opposed the provision of $15 million in the 1983 revenue requirement for such purpose.

Board Counsel considered the revised proposal to be premature since questions of currency translation and restatement of accounts had yet to be settled; there wasn't as yet a firm CICA ruling; and there was lack of study and approval at various levels within Hydro, including both the Audit Committee and the Board of Directors. He estimated that its cost for 1983 had risen by $18.6 million and urged this Board not to recommend its approval until a firm CICA ruling is in place and the necessary sequence of studies and approvals within Hydro have been completed.

Hydro countered that the proposed policy is acceptable under current generally accepted accounting principles; and that the existing policy would unlikely be acceptable under the anticipated CICA ruling. It submitted that therefore it was incumbent upon Hydro to make provision for a change in policy to accommodate the most probable occurrence in 1983. Subsequently, an exposure draft of the pertinent ruling was issued by CICA and a copy was filed by Hydro.

The Board considers that it would be inappropriate for it to approve such a proposal until there is a firm CICA ruling in place and all aspects of the revised proposal have been reviewed and approved accordingly by those concerned within Hydro, including its Board.

Because the change to a sinking fund has aggravated rather than moderated the impact, there is need to give further consideration to phasing in its introduction, especially since it was understood that phasing in would likely be acceptable under the CICA ruling.

The Board considers that this policy change is still premature and that constraint conditions again make it inopportune to proceed. The policy change has been pending for several years and there is no evidence indicating an urgent need for its introduction in 1983. The Board therefore recommends that its introduction be deferred and that the $15 million provision for it in the 1983 revenue requirement be removed.

The Board is concerned that Hydro's foreign exchange treatment may be placing Canadian suppliers, especially Canadian single source suppliers, at a disadvantage. The

Board recommends that foreign purchases be reviewed to ensure that the preference for Canadian sources is not eroded by the manner in which foreign exchange is handled.

Other Policy Changes

As a result of a number of recommendations made by the Board in its H.R.5 report of December 1979, Hydro proposed a number of policy changes and objectives in order to comply with the recommendations. The objectives are:

- Rates should recover the annual revenue requirement.
- Rates should be fair -- broadly defined as those which track costs and assign equal treatment to equals based on cost causality, to the extent feasible and practical.
- Rates should encourage efficient use of facilities and resources in the production, distribution and consumption of electricity so as to minimize costs to Ontario Hydro customers over the long term.
- Rate structures should be publicly acceptable and comprehensible, and should be stable and feasible in application.

To achieve these objectives, Hydro made substantial modifications to the cost allocation process; proposed policy changes which would increase the time interval of demand for billing purposes from 15 minutes to 60 minutes; and reclassified some common costs as non common, enabling direct assignment of some transformation facilities and distribution lines directly to users. The impact of these policy changes will be more thoroughly discussed in subsequent sections of this report.

The Economic Outlook

Economic forecasting even in times of economic stability, is a hazardous undertaking. It is not a precise process and the earlier a forecast is made the less accurate it is likely to be. The prevailing economic environment would have to be characterized as unstable or at least dynamic. It is one in which economic forecasts even in the near term tend to be inaccurate and unreliable.

The rate proposal process is time consuming. It involves the preparation of the underlying data and the rate proposal; the approval of Hydro's Board of Directors and its submission to the Minister with subsequent examination by this Board and report to the Minister, followed by further consideration on the part of Hydro's Board. It requires considerable lead time in the preparation of the economic forecast. This sequence in this case necessitated that the primary economic forecast be based on the data of mid 1981 so that the forecast could be issued in October, 1981. This forecast became a key document upon which many other budgetary assessments were based and as Mr. Rogers pointed out, the "submission considered by the Board in April 1982 is seven months out of date at least".

The Economic Outlook Annual Review was accompanied by several other publications which attempt to assess risk variation from forecasts as well as a most likely scenario. This, too, was published in October 1981. The Economic Outlook is a long term, macro economic forecast produced annually and reviewed in March. It contains predictions for the economies of Canada, Ontario, the United States, United Kingdom, West Germany, Switzerland and Japan. Among the forecasted variables are real gross national product, inflation, interest rates, exchange rates, and wages and prices of particular importance to Ontario Hydro.

Hydro submitted an update of the October 1981 Economic Outlook dated March 1982, which, presumably, was based on data up to January or February of 1982.

In addition to this data, the witness of Board staff, Dr. L. de Bever of Chase Econometrics, Canada ("Chase") submitted Chase's forecast of key economic indicators for 1982-1983 as published in April 1982 and included data up to and including February and March of this year.

AMPCO, through its witnesses, G. M. Stamm and Dr. W. J. Chambers, submitted economic evidence which indicated a tendency for Hydro to "forecast costs well above those actually incurred", and "display[s] a disturbing pattern of consistently conservative forecasts". AMPCO stated that:

> "Ontario Hydro is forecasting provincial inflation rates to be 11.5 percent in 1982 and 12.5 percent in 1983 while the Ontario Economic Council is predicting inflation rates of 9.5 percent and 10.0 percent for the same two years".

In argument, AMPCO provided a good deal of constructive criticism and made a number of suggestions as to how the process might be improved -- particularly with respect to interpretation of economic data. It requested and received by interrogatory, a report on the economic impact of the rate increase on the Province of Ontario. Hydro indicated in its report that electric rates to be imposed upon residential, commercial and industrial customers within Ontario compare favourably with rates of other major electric utilities, particularly those in the United States. The report concluded that:

> "The economic impact of the proposed 1983 bulk power rate increase is relatively small as compared to the types of impacts typically caused by tax changes, government monetary policies, and oil price increases".

The same report also concluded that any extra borrowing to replace any revenue reduction "would probably be at the higher real interest cost, necessitating higher rate increases in the future".

AMPCO suggested that the Chase forecast should be adopted.

Counsel for Hydro took exception to AMPCO's criticism with respect to interpretation of economic data, arguing that Hydro did provide as in the past, descriptions of the use of the Economic Forecasting Series and Economic Outlook in the Financial Forecast as well as examples of how these are used.

AMPCO also expressed concern about the possible loss of industrial load because of the forecasted rate increase. However, it admitted that proximity to markets, transportation and other factors are important in attracting and retaining industry.

OMEA also argued for a number of innovations insofar as presentation of evidence is concerned.

OMEA supported the predictions of Chase as being significantly more realistic than Hydro's recommendations and urged the Board to adopt them, with a consequent reduction in revenue requirement of $31.2 million. Chase's position in this respect was based upon a downward trend in Canadian inflation rates, improved exchange rates and lower interest rates.

When the Ontario Hydro updated forecast is compared with the Chase forecast, both are found to be in substantial agreement except for the inflation rate (CPI) and the gross national product (GNP). Of the two, the CPI is of utmost importance, as it has a significant impact on the revenue requirement and rates. Hydro submitted an impact study which indicated that for a 1 percentage point change in the Canadian CPI, the revenue impact would change by $17 million.

The Hydro revenue requirement is based upon a forecasted inflation rate of 12.5 percent in Canada, compared to 9.1 percent forecast by Chase Econometrics. In the opinion of the Board, Chase may be overly optimistic in forecasting the rate of inflation in Canada at 9.1 percent. However, it is reasonable under the circumstances to expect government intervention and in fact, the Federal Government has recently taken steps intended to reduce it in Canada. These steps, combined with efforts already undertaken by the Ontario Government and the fact that inflation in the United States has the appearance of coming under control, have led the Board to conclude that the CPI in 1983 will probably be 2 percentage points less than Hydro's prediction. The Board therefore recommends a reduction of $34 million in the revenue requirement to reflect an expected rate of inflation of 10.5 percent.

The American CPI could also have an impact on Hydro operations. Chase expects the U.S. CPI at 6.8 percent to be 3.2 percentage points lower than Hydro's forecast for the U.S. It would appear that the U.S. is having some success in reducing inflation, and the Board considers it probable that there will be a 2.5 percent reduction from Hydro's American CPI forecast and recommends that such reduction be adopted. According to the sensitivity criterion developed by Hydro, a 1 percent change in the American CPI will have a $13 million impact on its revenue. This will reduce the revenue requirement by a further $33 million.

Expectations of all economic witnesses are that interest rates will increase in 1983 and that the Canadian dollar exchange rates in terms of foreign currencies will decline. As set out in Exhibit 88, this could increase costs by some $29 million. This forecast was acceptable in Board Counsel's opinion and it was not otherwise challenged. The Board therefore recommends that the revenue requirement be increased by $29 million.

In the final analysis, the forecasts of the GNP are in substantial agreement. Chase expects a slightly more severe recession but a more robust recovery in 1983. In the opinion of the Board, the evidence does not justify any revision to the revenue requirement on this account.

In summary, the examination of the economic environment and future expectations has led the Board to the recommendation that the revenue requirement can be reduced by $38 million.

Peak Demand and Energy Forecast

The load forecast is always an important element in the budgeting of costs and hence, the derivation of the revenue requirement for the following year. Hydro's load forecasting methodology remained basically the same as in previous years.

Hydro submitted an updated 1982 Budget Load Forecast. In the Executive Summary of that report, it acknowledged that, "The level of the forecast is virtually unchanged from the 1982 Planning Load Forecast approved in November 1981". The load forecast indicated a peak generation demand for 1983 of 18,314 MW, representing a 3.5 percent increase over the estimate for 1982. The primary energy requirements (which exclude secondary sales) for 1983 were forecast to be 108,812 gigawatt hours ("GW.h") which is also a 3.5 percent increase over the estimate for 1982. Although the monthly load factors in both years are in the upper 70 percent range, the annual load factor for both years is estimated at 67.8 percent.

Mr. Rogers was critical of the forecast in that no attempt had been made to reflect price elasticity arising out of the proposed change in the rate structure. Hydro's counsel argued that Mr. Higgins had indeed ascertained an elasticity factor but there were a number of counteracting factors which tended to nullify its impact. Mr. Higgins had speculated that any expected increase in electricity sales in the winter months arising from the off oil program could be offset by the higher winter prices; and the lower prices in summer months could be nullified by the effects of the weak economy.

Mr. Schwartz, on behalf of OMEA, submitted certain calculations with respect to the impact of elasticity on both municipal utilities and the direct customers, and concluded that there could be a reduction in usage in winter and an increased usage in summer. He calculated that the effect would be a net savings in the revenue requirement of some $2.1 million; and recommended that the Board reduce the 1983 revenue requirement by that amount. Ontario Hydro found fault with these assumptions and calculations; and argued instead for a $3 million increase because of the tendency toward higher interest rates which are depressing the housing and automotive sectors, particularly.

The Board is of the opinion that the direct industrial customers may have a slight response to seasonal differentiation of rates but the municipal utilities are expected to have a somewhat delayed reaction. It is expected, however, that there will be very little shift in the system load curve in the 1983 calendar year. The Board therefore finds no reason to modify Hydro's load forecast for 1983 and recommends that the load forecast as originally submitted be accepted as the basis for the rate proposal.

Energy Variable Costs

Energy variable costs are those costs which vary directly with the amount of electrical energy produced. They include fuel costs (water rentals, nuclear fuel, fossil fuel and steam) together with certain credits and other charges which are considered to be fuel related. A summary of all those costs is shown in Table 2 below.

Table 2

FUEL AND FUEL RELATED COSTS
$ Millions

	Plan	Forecast		
	1982	1983	1984	1985
Fossil	911	1008	783	1034
Nuclear				
Nuclear fuel	132	156	259	340
Past irradiated fuel management	26	18	18	18
NPD (steam)	8	9	9	9
Cobalt revenue	(5)	(6)	(8)	(8)
Water rentals	26	29	32	36
Internal transfers				
Internal sales	(24)	(27)	(34)	(41)
Bruce Steam Transfer Credit	(68)	(58)	(49)	(52)
Power purchased	119	126	126	133
Nuclear agreement payback	67	69	81	29
Commissioning energy	2	23	115	7
FUEL AND FUEL RELATED	1193	1346	1332	1504

Source: Exhibit 5, Table 3.5 and 3.6 Pages 9 and 10.

As can be seen from the table, by far the greatest proportion of these costs is represented by the cost of fossil fuels (coal, oil and gas). The more electrical energy which can be produced by means other than fossil fuels, the lower the total fuel bill will be, as coal costs more than twice as much as uranium and far more than water per unit of electrical output.

Fuel Inventory

Board Counsel in his argument, pointed out that Hydro should maintain a six month inventory of nuclear fuel rather than the 10 month supply which Hydro presently maintains. The resulting savings would amount to $9 million. He argued that Hydro has been extremely conservative in assessing risks of interruption in its fuel supply and had concluded that high inventory levels are required. He submitted that:

> "In the fuel fabrication stage Hydro has assigned a probability of 5 percent for a major disruption. That includes fire, destruction, explosion or vandalism. This is a 5 percent probability of a disruption of 15 months. That means that at any point in time Hydro assumes there is a one in 20 chance that the plant will be disrupted tomorrow for 15 months. It is submitted that this is unreasonably high and results in an overstatement of inventory requirements. The probability of strike is assumed to be 11 percent."

Hydro, in replying to Board Counsel, pointed out that it has already contracted for its 1983 nuclear fuel requirements and thus no savings could be realized in the rate year. Hydro also pointed out that the cost of carrying the 10 month inventory must be measured against the cost of losing even one unit at Pickering for one month because of a fuel shortage. Hydro's counsel argued that "the cost of a given level of inventory over another given level can be regarded as an insurance premium and the issue is whether the premium is reasonable considering the risks".

The Board agrees with Hydro that no adjustment can be made in 1983 to change the nuclear fuel inventory. It also suggests that Hydro should consider the likelihood of the governments of Ontario and Canada terminating by legislation any disruption in the supply chain caused by a strike. The Board also notes that Hydro intends to complete an extensive review of "supply side factors" in the coming months and recommends that it be completed in time for the next hearing.

Coal supply contracts involve hundreds of millions of dollars. Board Counsel and counsel for AMPCO both argued for a much fuller examination of this topic than has been undertaken in the past. However, Hydro's counsel argued that its supply contracts are confidential for the following reasons:

- specific details of contract terms and prices are of interest to potential suppliers as they tell them what they can expect from a contract with Hydro;

- a supplier will often grant Hydro specific favourable price concessions or other concessions on the basis that they will be kept confidential;
- a forecast of a price by Hydro can be expected to set a limit in the mind of a supplier and moreover, Hydro often is a major segment of a market and revealing its expectations could adversely affect either Hydro or the market as a whole.

The Board does not see any reason for examining this subject any further in this report because of the lack of information; but it does recommend that the whole area of coal supply including contract premiums or underlift charges and capital contributions to suppliers, be the subject of further investigation at the next hearing before this Board. Hydro's argument in regard to confidentiality must be adequately met, as its concern is legitimate. Hydro, in order that it can continue to compete in what is obviously a very competitive market, must have a degree of confidentiality at least equal to its competitors in that market. The Board therefore recommends that Hydro produce for the Board at the next hearing such information on coal supply contracts as is customarily supplied by utilities appearing before their regulatory agencies.

Capacity Factor Projections

In attempting to determine how much energy can be produced by non fossil fuels (i.e., hydraulic and nuclear), Hydro predicts what interruptions each unit will likely experience as a result of planned maintenance, emergency shut downs or other causes and arrives at a figure it calls the station's capacity factor. The capacity factor is defined as that percentage of electrical energy which is actually produced by a station compared to what it is capable of producing.

To illustrate the importance of this factor in the determination of 1983 rates, it should be noted that, all other things being equal, a 1 percentage point increase in the capacity factor for Pickering would lower Hydro's revenue requirement by $2.4 million, and a similar change in the factor for Bruce would lower the requirement by $4.5 million. A 1 percent increase in the estimate of hydraulic production would lower the revenue requirement by $7.6 million. It is clear that in order to keep the estimate of total fuel costs as low as possible and thus keep 1983 rates as low as possible, these capacity factors must be as high as feasible in order that residual energy from coal fired stations may be minimized.

As a result, Board Counsel, together with counsel for AMPCO and OMEA, closely examined Hydro's estimates of production from its hydraulic and nuclear units. Board Counsel pointed out that Ontario Hydro is too conservative in its estimates of the capacity factors and that it continually underestimates its nuclear production and thus overstates the amount of coal required to meet the balance of the system load. To illustrate this underestimation, Board Counsel produced the following comparison of Hydro's forecasting versus the actual capacity factors for Pickering and Bruce:

	PICKERING		BRUCE*	
	Forecast	Actual	Forecast	Actual
1979	86	84	55	66
1980	85	83	60	79
1981	84	88	70	80
1982	83	N/A	70	N/A
1983	83	N/A	77	N/A

* For comparison purposes, the percentages listed for Bruce are net of steam production.

He pointed out that the new unit coming on stream at Pickering was one of the reasons why Hydro forecast a lower capacity factor for Pickering during 1983, but if the unit is delayed -- as the evidence indicated that it might be -- the station's capacity factor will be less diluted by the initial poor performance of the new unit. For the remaining four units at Pickering, he added, Hydro is forecasting an 86 percent capacity factor in spite of the fact that last year Pickering operated at 88 percent of capacity.

Board Counsel argued that the outages estimated by Hydro to occur in 1983 at both Bruce and Pickering were higher than should be reasonably expected.

Board Counsel concluded that in his opinion, Bruce will experience an 80 percent factor -- 3 points higher than Hydro's estimate -- and Pickering, in all probability will have a capacity factor of 85 percent -- 2 points higher than forecast by Ontario Hydro. The total impact as a result of these changes suggested by Board Counsel would be a reduction of $19 million from Hydro's revenue requirement.

Hydro, in its response, pointed out that Bruce had matured faster than had been expected and that it had taken this into account by forecasting that Bruce will exceed its output in 1983 by three percentage points over the forecast of last year. However, Mr. Genest on behalf of Hydro, argued that Board Counsel's figures illustrated a much more optimistic output than Ontario Hydro felt reasonable. As far as Pickering is concerned, Mr. Genest pointed out that the new unit will have an initial capacity factor of 71 percent, which will lower the station's overall capacity factor to 83 percent.

It is obvious that in determining cost based rates for a prospective test year, forecasts or estimates are necessary. The amount of time and expertise devoted to this pursuit is substantial and the process is being improved every year. However, no matter how accurate computer models may be felt to be, there is still an element of human judgment applied to the final result and ultimately, the computer must only be relied upon to check or verify the judgment of the forecasters. The Board does not see itself as second guessing Hydro on its forecast, nor does it see itself as better qualified to make forecast judgments and then recommemd that they be imposed on Ontario Hydro. However, the Board does have the opportunity to see Hydro's procedures being tested by cross examination and direct evidence; and it can easily see the frailty of the forecast even though it may not be able to determine it any more accurately than Hydro.

There is no question that Ontario Hydro's forecast will be incorrect -- that is inherent within the very definition. The Board wishes to make it clear that it employs forecasts as a rate making tool and although accuracy is strived for, it is not essential to the process. The object is to have cost based rates which are just and equitable.

With this in mind, the Board observes that for rate making purposes, Hydro set fuel costs for 1981 which resulted in its over collecting $140 million in that year's rates alone. Hydro estimated that it will over collect $85 million in rates in 1982 for the same reason. Had this saving been foreseen and translated into rates for 1982, it would have served to reduce the overall increase by about 3 percent.

Again, this Board hastens to point out that it highlights the fuel forecast, not because it is critical of Hydro's forecasting methods or its record of accuracy, but rather to emphasize that just and equitable rates do not necessarily flow from mechanistic application of forecasts.

Looking at actual production for the period from 1977 to 1981 (the latest figures available), OMEA pointed out that such production from coal fired stations was 15.6 percent below forecast levels whereas it was about 13.4 percent above forecast for nuclear. Again, this illustrates the obvious overstatement of expensive coal fired generation built into the rates or, conversely, the benefit of an extra 13 percent of cheaper nuclear generation not reflected in the rates during those years. If the Board were to assume that this ratio would continue for the rate year, the result would be a recommended rate reduction in 1983 revenue requirement of an amount between $114 million and $131 million. However, the Board feels that it should use such percentages only as a guide.

As stated earlier in this report, Board Counsel attributed a conservative bent to Hydro whereby it tends to err on that side of a forecast which will produce more rather than less revenue for the Corporation. Mr. Genest took issue with this argument insofar as it concerns the forecast for energy production, by pointing out that for

Pickering the forecast had been on the high side for only two years out of the last four. As far as Bruce is concerned, now that it is mature, Hydro can forecast energy production more accurately.

The Board is of the opinion that when considering the annual production of energy from less expensive nuclear generation, it should recommend a reduction in the revenue requirement to reflect greater expected production. The Board feels that less coal will actually be used than is forecast, as that has been the trend over sufficient years to form a pattern for rate making purposes. The Board therefore recommends a revenue requirement reduction of $11 million, which represents an increase of energy production from both Pickering and Bruce of 1 to 2 percent over that forecast by Hydro.

The Board feels that it should comment on the amount of energy that cannot be generated at Bruce because of constraints due to inadequate transmission facilities from the site. This results in a direct calculable loss to Hydro because of its inability to move this inexpensive nuclear energy to market.

In 1983, it is estimated that $612,000 worth of coal will have to be burned to compensate for delivery constraints. In 1984, that cost (in 1983 dollars) increases to $4.3 million for the same reason.

Locked in energy increases costs other than just its replacement cost with expensive coal fired generation. The capital cost and all fixed charges paid by present customers are justified on the basis that the Bruce site is able to produce a certain amount of energy, but that amount is reduced by transmission limitations. Thus, there is a benefit passed on to future customers since the present customers are paying a part of the fixed charges in today's rates for generation facilities not useful to them.

Ontario Hydro is attempting to alleviate the overall situation by speeding up the approvals necessary for the new transmission lines and implementing a "generation rejection system", as explained further in the evidence. Were it not for these efforts, the costs of locked in energy would be very much greater.

Lennox Oil

Ontario Hydro's announcement after the completion of the hearing and presentation of argument that it did not intend to operate Lennox TGS at any time during 1983, represented a change in the evidence as presented at the hearing. The net effect will be that no oil will be required at Lennox but that this energy will be substituted with less expensive coal fired generation. The 61 GW.h of oil fired generation would have cost $3 million. To produce the same amount of energy by coal will cost approximately $1.5 million, resulting in a savings of $1.5 million to Hydro, which the Board recommends be deducted from the revenue requirement.

Irradiated Fuel Management Charge

Hydro included $43 million in the revenue requirement for the irradiated fuel management (IFM) charge, of which $18 million was for past service and $25 million for current service. These amounts have not been adjusted for commissioning costs, nuclear payback or the Bruce steam credit.

AMPCO, while reaffirming support in principle that a charge should be levied against (current) users for costs associated with the ultimate disposal of irradiated fuel, submitted that as the target in service date for the disposal facilities is unsubstantiated and the spent fuel storage bays have the capability to store the waste indefinitely, the target date of year 2000 is premature and the cost provision is excessive at this time.

AMPCO considered that Hydro's witness was much less confident this year that the disposal facility would be in service on time. Noting that many aspects of the disposal project remain unsettled, it proposed that the target date should be moved 25 years into the future and the revenue requirement should be reduced by $7.6 million accordingly, net of nuclear payback adjustment

AMPCO stated that using the year 2000 as the date by which all funds should be collected, places an unnecessary burden on the revenue requirement and pushes it beyond the lowest feasible level.

In reply, Hydro took the position that as the Board in H.R.10 had accepted that the charge for management of irradiated fuel was appropriate commencing in 1982, such charge would continue to be appropriate in 1983.

Hydro contended that AMPCO's suggestion that the evidence on this matter had changed substantially since last year's hearing to indicate that the in service date should be retarded, was contrary to the evidence. Hydro pointed out that Dr. Drolet had testified that Hydro's last estimate of the in service date of the disposal facility was still the year 2000. He stated also that the federal and provincial governments had announced a target completion date of 1990 for their assessment of the method of disposal for irradiated fuel.

In the Board's view, all of the factors contributing to determination of the revenue required to be provided yearly for irradiated fuel management are highly uncertain. Accordingly, there is a need to reassess each of these factors yearly to ensure that significant changes do not invalidate the provision, thereby making it inequitable to either current or future customers. Hydro is apparently using updated predictions of interest rates and escalation factors. However, the Board considers that in view of the huge funds ultimately involved, there is need to review and update yearly each of the other key factors as well -- even including the possibility that a market will develop for irradiated fuel. Furthermore, there is a need to look at the probability distribution of a range of values for such factors as the in service date, in order to enhance the objectivity of the decision. The Board senses from the evidence that the year 2000 should be looked upon as the earliest possible in service date rather than the most probable one. However, the Board sees no evidence to warrant extending the target date by even a year at this time, far less than the 25 years suggested by AMPCO. The Board therefore declines to recommend a reduction in the revenue requirement for 1983 in respect of irradiated fuel management because of a potential change in the in service date of the disposal facilities.

In its review of the provision for the past portion of the irradiated fuel management charge and in light of the aforementioned uncertainties, the Board is mindful of the need to provide for equitable treatment of present and future customers, as well as the need to relieve the revenue requirement and rate increase during the economic recession. However, the Board is of the opinion that this provision should be spread over the remaining time to the estimated in service date of the disposal facility, in order that it would be automatically taken into consideration and modified along with the other (current) portion, should the in service date or other factors change.

The Board therefore recommends that provision for the past IFM charge be calculated on this extended basis commencing in 1983; and estimates and recommends that a reduction of the 1983 revenue requirement of $9 million should be made.

Nuclear Power Demonstration Station

The Nuclear Power Demonstration (NPD) reactor at Rolphton is a small unit owned by Atomic Energy of Canada Ltd. (AECL) which produces about 150 GW.h per year. The unit is operated by Hydro as a training station and the steam produced by the reactor is purchased by Hydro to run its turbine generators on site. Hydro expects to pay $9 million for this steam in 1983, which ranks energy production at NPD the most expensive in the entire system. Even oil produced energy (of which there is none forecast for 1983) would be less expensive than energy produced at NPD.

Ontario Hydro justified the disproportionate energy cost from this station on the basis that the unit demonstrates the long term effects of nuclear radiation and the effects of high temperatures and pressure on plant equipment. The station is also used for testing new types of fuel and for training operating supervisory staff.

The station has been operating under a 1958 agreement terminable by either party on six months' notice. The operating cost to Hydro, over and above the cost of steam supplied to its generators, is 30 percent of the OM&A costs of the entire station.

OMEA queried the usefulness of the station as a training establishment and recommended that the agreement with AECL be cancelled, thereby reducing the revenue requirement by $4.7 million. The saving was calculated by OMEA as the difference between the steam costs from NPD and the cost of coal fired generation used to replace the energy.

The Board is concerned about the very heavy cost of steam in light of the following:

- o energy could be produced by coal fired generation at about half the cost;
- o over and above the fuel costs for the turbines (i.e., the steam) Ontario Hydro also pays 30 percent of the OM&A costs for the nuclear reactor which may be a disproportionate expense, taking into account the already high cost of steam; and,
- o the 30 percent of OM&A costs attributed to Ontario Hydro may be over and above the training costs to Ontario Hydro.

The Board therefore recommends that Hydro be prepared to show cause at next year's hearing as to why the Board should not recommend termination of the NPD agreement and the moving of the training and testing to some other nuclear facility.

Cobalt Revenue

Listed in the table at the beginning of this section is a credit of $6 million for revenue from the sale of cobalt 60 during 1983. Cobalt 60 is produced in some of Hydro's reactors which are designed to permit specifically the insertion of cobalt and its eventual removal as a radioactive isotope. It is used as a source of gamma radiation for medical purposes.

At present, Ontario Hydro sells this material to the AECL which is planning to expand its market world wide. Negotiations are now underway regarding the price for which AECL will purchase the cobalt 60.

Hydro gave evidence that the negotiations are confidential -- one of the big issues being Hydro's cost to produce it. The fact that AECL may not be able to get cobalt 60 from any other readily available source should give Hydro a valuable business advantage which, in the Board's opinion, should be exploited to the fullest. It is the Board's opinion that Hydro should be more concerned with the final market price of its product than with AECL's perception of Hydro's cost to produce it; and furthermore, AECL's interest in Hydro's cost of production is irrelevant to the eventual sale price. It is the

Board's opinion that as long term supply contracts entered into by Ontario Hydro have resulted in extensive criticism, it would be better served by a short term contract with AECL -- particularly considering that the market for the product on a world wide basis may not yet be fully determined by either party. Hydro, in the Board's opinion, should keep in mind that it has a duty to provide domestic power at cost but not cobalt 60 or other byproducts at cost.

Ontario Powershare

The Board has examined the evidence in regard to the Hydro contract with Ontario Powershare, the Ontario Energy Corporation's wholly owned subsidiary for the distribution of steam. Although there will be capacity in the near future to provide Powershare with large amounts of steam, Powershare has not yet acquired any customers for steam. Hydro's witnesses have testified in this respect that "... nobody seems to have a lot of confidence that they are going to produce the customers in the near future".

In view of the large potential benefits to be derived from the sale of steam as a byproduct of the Bruce facility, it is incumbent upon Hydro and Powershare to move quickly to develop this market.

Water Rentals

This item of energy variable cost has been referred to by Hydro as "free fuel". It is comprised of annual payments ($29 million for 1983) for the rental of water used for hydraulic production. The payments are divided approximately as follows:

Government of Ontario	$23.7 million
Niagara Parks Commission	$2.6 million
Government of Canada	$1.7 million
Government of Quebec	$0.6 million
Hydro Quebec	$0.3 million

The Water Rental Agreement with the Ontario Government is presently under negotiation since it expires at the end of this year. Ontario Hydro has assumed that it will continue on the same terms for the rate year, with the only major change being an increase in payments arising from the increase in the CPI.

As there was no objection or contrary evidence given, the Board recommends acceptance for the purposes of these proceedings only of Hydro's provision for water rental.

Internal Transfers

Hydro charges itself for both the electrical energy used at the Bruce Heavy Water Plant ("BHWP") and in generating station construction in order that both the construction of the generating station and the production of heavy water will be costed properly. The rate which is used is that charged to a municipal utility for equivalent conditions of service, less the provision in that rate for net income. The Board in H.R.10 commented on the fact that Ontario Hydro did not charge a provision for net income. Its concern was that since future customers would take the entire benefit from any new generating station or from the production of heavy water, they should therefore pay the full rate for electricity used to create that benefit.

The Board felt that present customers were subsidizing the production of heavy water and the construction of generating stations by providing electricity at lower than normal rates. This was not discussed in any detail during the present hearing and the Board recommends that Hydro address this question directly in its prefiled material for the next hearing before this Board.

In light of the above, the Board recommends that the amount of the internal transfer proposed by Ontario Hydro be accepted for the purposes of these proceedings only.

Bruce Steam Transfer Credit

The Bruce Steam Transfer Credit is the accounting procedure for costing steam supplied by the nuclear reactors at Bruce A to the heavy water plants. Such steam, if not diverted from the production of electrical energy, is priced at the nuclear fuelling cost. It charges for steam that is diverted from the production of electricity at Bruce at the incremental cost of generation elsewhere to replace the curtailed generation at Bruce. As the replacement generation is mostly coal fired, the cost of the diverted steam is much higher.

The Board expressed some of its concerns regarding this accounting arrangement in its H.R.10 report last year, although it was not addressed in this year's hearing. However, the Board has continuing concerns regarding the Bruce Steam Transfer Credit. The Board recommends its specific inclusion in Hydro's review of heavy water production, which the Board is recommending elsewhere be broadened to embrace all accounting aspects of heavy water.

Commissioning Energy

Commissioning energy is the energy produced by new generation units during their "work up" or commissioning stage. The commissioning energy charge is that cost which Ontario Hydro would otherwise have to bear to obtain energy if it were not supplied with energy from the unit being commissioned. The cost would normally be the average cost of coal in inventory that would be burned to generate an amount of energy equal to that produced during the commissioning stage. The total energy variable costs therefore would remain the same as if there were no commissioning energy, but the components of the total vary significantly.

During 1983, Ontario Hydro expects that three new nuclear units (Pickering 5 and 6 and one unit at Bruce B) will each be producing some commissioning energy. The imputed cost of $23 million during the rate year is therefore higher than in recent years. Although the pricing policy for commissioning energy has no effect on overall variable costs, it does affect the cost of the energy produced when that unit is actually commissioned. Construction costs, and labour and fuel costs which are capitalized at the time of actual commissioning, are credited with the value of the energy produced by that unit during its commissioning stage. This effectively spreads the "revenue" from that energy over the life of the unit and reduces the annual fixed charges allocated to rates. Therefore, the lower the charges allocated to commissioning energy in any particular year, the higher the annual fixed charges for any unit coming on stream.

At the present time, the fact that Pickering 5 is forecast to be commissioned in April 1983, adds an amount of approximately $11 million to the revenue requirement for every month it is in service. This amount is, of course, the estimated month's fixed charges for that unit and its share of operating costs. However, with a lower charge or no charge at all for the energy produced during the estimated 120 days of work up required for Pickering Unit 5, the amount would be more than the present $11 million per month. While it is not possible to determine the precise amount of that increase from the evidence supplied at the hearing, it is possible to determine the maximum amount of any such increase. Although four units will provide commissioning energy during 1983, only Pickering 5 actually comes into service. If the shortest possible service life for a nuclear unit (15 years) is taken and it is assumed that all $23 million worth of the 1983 commissioning energy is allocated to this unit, the largest monthly credit possible is approximately $130,000. This means that if the commissioning energy was priced at zero, the monthly charges on the actual commissioning of Pickering 5 would increase by a maximum of approximately $130,000 but the revenue requirement for the year would drop by $22 million ($23 million less $1 million for the increase in fixed charges for Pickering 5 from April to the end of 1983).

The Board finds that although it is difficult to fault Ontario Hydro's principle of costing commissioning energy (in fact, the Board has specifically approved the principle in past hearings), it is of the opinion that the theory must be examined in light of the practical consideration of the cost to present customers versus the benefit gained by future customers. The benefit to future customers as a result of 1983 commissioning energy charges would be a maximum of about $1.5 million per year (12 months times $130,000 per month), which would cost present customers about $23 million in 1983. For 1984, the cost disparity would be even greater because of the greater amount of commissioning energy generated.

As mentioned earlier, the Board has approved the pricing method of commissioning energy on previous occasions. However, in light of the large sums attributed to its application in 1983 and particularly in 1984, it is the Board's opinion that Hydro should weigh the cost to present customers against the benefits to future customers rather than applying mechanistically a formula which was designed in times of much lower quantities of commissioning energy.

The Board therefore accepts the policy for costing of commissioning energy for 1983, but recommends it be re-examined by Hydro in time for presentation at its next hearing before this Board.

Summary Remarks

In summary, it seems to the Board that Ontario Hydro applies accounting principles to several areas which appear to result in benefits being passed on to future customers at some expense to present customers. If this is an intentional policy of Hydro's Board of Directors, it is the opinion of this Board that it should take a new and hard look at this and consider the benefits which it could pass on equitably to the present customers if this policy was reversed.

Specifically, the Board is referring to:

- the lack of a net income provision in the costing of internal transfers of electricity;
- the policy for costing of steam supplied to the BHWP; and,
- the policy for the costing of commissioning energy.

When all of these are considered collectively the cost to present customers of the benefits accruing to future customers is in the many millions of dollars per year.

Increased revenue to Hydro obviously offsets borrowing costs and therefore interest costs in the future. This certainly serves to improve Hydro's objective to minimize long run costs, but the cost in order to do so may be inequitably high to present customers. If this is Hydro's intention and in order to more properly reflect this cost, Hydro should put the total amount of these benefits in its provision for net income so that such costs are properly identified. In any case, as already recommended, this question should be thoroughly examined at the next hearing before this Board.

Operating, Maintenance and Administration Costs

Introduction

OM&A costs for 1983 are forecast to be $1,024 million, an increase of $143 million over the 1982 level. Of this increase, $25 million is for program additions and the remaining $118 million is to provide for general escalation in costs because of inflation.

Included in the OM&A panel of Hydro witnesses during the hearing was Ontario Hydro's President, Mr. Nastich. Although his presence before the Board was most helpful, it did tend to attract more policy questions than questions of a specific budgetary nature. This section of the report reflects this tendency.

Information Management

In the 1983 OM&A budget, Hydro included the sum of $4.7 million as the implementation costs of its 1981 program to provide an interoffice message service and to conduct pilot studies in office automation. Such studies were to include the introduction of the telecommunication of document images as well as an investigation of fatigue and safety problems associated with the use of visual display terminals.

Board Counsel described much of this program as, "Another example of high technology run wild". On the other hand Hydro's counsel, pointed out that such programs were in place in other large corporations and he urged the Board to recommend that this program proceed.

The Board is of the opinion that part of this project should be postponed since it represents a cost increase in the OM&A budget which, under prevailing circumstances, is not absolutely necessary. The Board therefore recommends that the investigation into fatigue and safety problems in the use of visual display terminals estimated at a cost of $75,000, be continued; but the remainder of the program be delayed until after 1983. The resulting decrease in the revenue requirement is $4.6 million.

Toronto Office Space

Ontario Hydro occupies about 1.8 million square feet of office space in downtown Toronto. Most of this is owned or, in the case of 700 University Avenue, can be considered to be owned by Hydro. The office space that concerns the Board specifically is 300,000 square feet leased in The Atrium building at the corner of Bay and Dundas Streets. Excluding the Atrium, Hydro's office space cost is reasonable. In fact, at $11.23 per square foot for most of it, the costs are well below comparable space costs in the city.

In regard to the space leased in The Atrium, the Board is concerned that Ontario Hydro chose to lease 300,000 square feet at a 1982 average gross cost of $23 per square foot in one of downtown Toronto's prime buildings. The total cost, some of which is directly built into annual electricity rates, is about $7 million. There is no evidence before the Board regarding any additional costs for amortization of necessary improvements or other costs which can also be attributed directly to this space. However, it can be assumed that there are further amounts in the rates for that purpose.

Mr. Nastich told the Board that he was "quite seriously" contemplating that a large number of head office staff would be moved to cheaper premises away from downtown Toronto: "As we look ahead, the growth decision is of concern to me ... I am asking our [people] to look at options. One of the options is to locate elsewhere." As Mr. Nastich testified, this goal is only achievable over the long term -- which the Board regards as three to five years.

No recommendation can be made in regard to this space which would affect the 1983 bulk power rates, but the Board does recommend that Ontario Hydro proceed with Mr. Nastich's plan and that the Board be kept informed. As well, the Board also recommends that Hydro again consider disposing of its former head office buildings.

Compensation

Counsel for Ontario Hydro pointed out that the April 1, 1982 contract with the Ontario Hydro Employees' Union ("OHEU") covering some of its 16,000 unionized employees, provided for an increase of 12.8 percent during its first year and 10 percent in the second year. As well, a cost of living increase is provided in the second year only if the inflation rate exceeds 10 percent.

As far as Hydro's engineering and professional staff is concerned, Hydro negotiates their salaries through the Society of Professional Hydro Employees (the "Society"). Hydro's practice of paying engineers in the "upper quartile" of the salary range as published by the Association of Professional Engineers of Ontario, ("APEO") drew criticism from Board Counsel, as well as counsel for OMEA and AMPCO. Hydro argued that the practice was necessary in order to attract and retain engineering staff of the calibre it required; and its counsel pointed out that this policy had contributed to the success of the nuclear program.

The Board, in examining Hydro's salary scale for its engineering staff, is of the opinion that to automatically pay salaries in the "upper quartile" of the APEO scale is unwarranted. In the Board's opinion, the justification for that practice as put forward by Hydro's counsel is not sufficient. In fact, because it confines salary comparison to the top quartile of the APEO scale, Hydro's policy for its engineers may be the major influence on that part of the salary scale. Thus, for Hydro to compare these staff salaries to that portion of the total APEO scale only, may be largely self serving.

It is the Board's opinion that Hydro's apparent practice of paying overtime to its engineering and management staff should be closely examined at the next hearing before this Board.

Mr. Nastich testified that the salary levels for its approximately 600 management executives on the Executive Salary Roll have been below comparable positions in the private sector for some years and therefore in 1983, "...executive salaries are moving up at more than the rate of inflation". Ontario Hydro's policy is that such employees should be paid a salary based on comparable jobs in other utilities and industries.

The question of salaries is always highly contentious and to interfere with them is a difficult decision. However, the Board, after examining all the options, is of the opinion that Hydro's Board of Directors should make an effort to lower the 1983 projected increases for its employees, especially those on the Executive Salary Roll, for the following reasons:

- the increases are forecast by Hydro to be above the forecasted inflation rate;
- any moderating influence on rates available to Hydro's Board of Directors should be exercised at least until inflation begins to abate;
- the excellent job security afforded such employees compensates for lower salary increases;
- in today's economic climate, increases, even to underpaid executives in private industry, are being postponed;
- Hydro's Board of Directors and its management personnel should be seen by Hydro's customers to be aware of, and involved in, the fight against inflation;
- other public sector salaries throughout Canada are either subject to guidelines or have a clear probability of so being in the near future.

The Board therefore recommends that Hydro's Board of Directors impose salary guidelines on all employees on the Executive Salary Roll similar in amount to those imposed on public servants in the Ontario Government. Conforming to these guidelines would result in an approximate decrease in the 1983 revenue requirement of $1 million, which the Board recommends.

Post Darlington Planning

During the hearing it was pointed out by Board Counsel that Hydro included the sum of $1.5 million in its 1983 OM&A budget for the planning of a further nuclear facility for the mid 1990s. Hydro's counsel agreed in argument that this amount should not be included in the budget. The Board therefore recommends that the revenue requirement be reduced by such amount.

Fixed Charges

Fixed charges are those covering interest, foreign exchange and depreciation. Fixed charges make up 34 percent of the net revenue requirement in 1983, slightly less than in 1982. Ontario Hydro's proposed revenue requirement for fixed charges in 1983 in comparison to previous years is shown in Table 3.

Earlier in this report in respect to interest, the Board recommended acceptance of an increase of $29 million in the net revenue requirement because of a changed prediction in interest rates and foreign exchange rates.

The issues which were raised regarding fixed charges follow.

Table 3

COMPARISON OF FIXED CHARGES

	Actual 1981		1982-1981		Estimate 1982		1983-1982		Forecast 1983	
	$M	%NR	$M	%	$M	%NR	$M	%	$M	%NR
Interest	655	23.8	32	4.9	687	22.4	84	12.2	771	21.3
Foreign Exhange	49	1.8	1	2.0	50	1.6	2	4.0	52	1.4
Depreciation	325	11.8	24	7.4	349	11.4	67	19.2	416	11.5
Fixed Charges	1,029	37.4	57	5.5	1,086	35.4	153	14.1	1,239	34.3
Net Revenue	2,748	100.0	316	11.5	3,064	100.0	553	18.0	3,617	100.0

Source: Exhibit 7, Table 3.10 and 3.15

Bruce Heavy Water Plant D

Of the four heavy water plants planned by Hydro, two are in service, one has been cancelled and completion of the fourth (BHWP D) has been deferred. Hydro included $16 million in the 1983 revenue requirement for the amortization of the estimated loss in value of the deferred plant.

AMPCO noted that Hydro had previously set aside the production of heavy water as if it were a separate business, thereby making it uncertain that any benefit from the sale of heavy water would accrue directly to electricity customers. AMPCO contended that it was therefore inappropriate and inequitable to amortize excess heavy water facilities to current electricity customers. It submitted that the Board should recommend that such amortization be charged to the heavy water cost centre, which would relieve the revenue requirement of some $17 million per year to offset the impact of the increased in service charges from the nuclear expansion program.

Hydro replied that its amortization proposal had been reviewed by this Board in H.R.7, rejected by it in H.R.8, accepted by it in H.R.9 and that acceptance was confirmed in H.R.10. Hydro therefore submitted "that inclusion of the amount related to Bruce Heavy Water Plant D is in accordance with a policy which has been thoroughly aired and which this Board has endorsed".

The Board accepts Hydro's position for the purposes of this hearing. The Board notes, however, that Hydro has undertaken a full review of its heavy water program and considers that it would be opportune and desirable for Hydro to include all accounting aspects in that review; and recommends that Hydro do so.

GPU Project

During the hearing it was announced that General Public Utilities ("GPU") would not be proceeding with its joint project with Hydro to take power from Hydro by submarine cable under Lake Erie. Hydro stated that its expenditures for development and subsequent cancellation of this project totalled $7.5 million, of which $5.8 million was charged to years prior to 1982 and $1.7 million would be written off in 1982.

The rate proposal contained a provision for a capital expenditure of $67.4 million for this project in 1983. Hydro's counsel later gave the cost consequence of eliminating this project as a reduction in the revenue requirement of approximately $2 million. However, Board Counsel in argument provided a calculation to show that the net income coverage of the interest involved was $3 million when rounded. As this calculation was not disputed by Hydro, the Board recommends that the 1983 revenue requirement be reduced by $3 million.

Before this project was cancelled, Board Counsel had argued that Hydro, in general, charges current customers with the development costs (including hearing costs) of such projects intended to benefit future customers until a formal commitment -- usually in the form of an Order-in-Council -- is made. He submitted that this amounts to a mismatch of costs and benefits and should be reconsidered.

The Board agrees that reconsideration is merited, perhaps with provisional capitalization indicated, and so recommends.

Nuclear Decommissioning

In respect of the nuclear generating stations, the Board recommended last year in H.R.10 that "decommissioning costs should be based on Restricted Site Release and be subject to further review as may be necessary". During this hearing, Hydro had recommended another option, namely, Storage with Surveillance for 30 years followed by dismantlement allowing Unrestricted Site Use.

In responding to the Board's recommendations of last year, Hydro stated that it remained convinced that its option selection was soundly based; and that it intended to bring this matter before the OEB during the 1983 rates hearing.

The Depreciation Review Committee reviewed the factors affecting the choice of the recommended option for nuclear decommissioning. It concluded that it remains appropriate for future costs of decommissioning nuclear generating stations to be based on the Storage With Surveillance followed by Unrestricted Site Use (Deferred Dismantlement) approach. The committee did not consider Restricted Site Release to be a complete decommissioning option as it does not recognize the need for eventual dismantlement of the facility. The committee was convinced that Deferred Dismantlement is the socially responsible and technically supportable alternative; and therefore, that the provision for future costs of decommissioning should continue to be based on the Deferred Dismantlement approach as originally proposed in the Nuclear Decommissioning Cost Study, which was agreed to by Hydro's Board of Directors. Accordingly, Hydro provided $11.7 million for nuclear decommissioning in its revenue requirement for 1983.

Board Counsel argued that Hydro had not provided additional evidence in this hearing but had merely restated the same proposal that this Board rejected last year. He submitted that Hydro had an obligation to demonstrate cogently why its approach is to be preferred; and that unless Hydro can persuade this Board that there is some reason to reconsider its decision of last year, some $5.5 million per year should be deducted from the revenue requirement to bring the provision for nuclear decommissioning down to the $6.2 million per year previously estimated for the Restricted Site Release option.

In reply, Hydro reiterated its stand and stated that the study's three nuclear decommissioning options -- Storage with Surveillance, Restricted Site Release and Unrestricted Site Use -- represent stages of any decommissioning approach. Hydro submitted that furthermore, Unrestricted Site Release was generally accepted as the ultimate objective of any decommissioning process.

Hydro then referred to the three decommissioning approaches reviewed this year in Exhibit 6. These are:

- o Immediate Dismantlement (Unrestricted Site Use immediately after shutdown);
- o Deferred Dismantlement (Storage with Surveillance for 30 years, followed by dismantlement to allow Unrestricted Site Use);
- o Restricted Site Release (entombment for an indefinite period, followed by dismantlement to allow Unrestricted Site Use).

It noted that there were doubts expressed regarding the social or technical acceptability of the Restricted Site Release approach since there is no guarantee that a building can withstand centuries of weathering; and noted as well that the regulatory authority, Atomic Energy Control Board ("AECB") has said that decommissioning should be completed within decades.

The Board notes that these options have been differently defined as decommissioning approaches in this year's hearing; and that what were called options last year, are now considered to be stages of the decommissioning process, with the final stage or ultimate objective being Unrestricted Site Use.

The Board was given the impression last year that with Restricted Site Release, some use of the site was permissible. Indeed, the Nuclear Decommissioning Cost Study in respect of Restricted Site Release stipulates:

> "With certain constraints, some parts of the plant or site could be converted to new uses or released for uses not involving other radioactive sources."

Now it appears that Restricted Site Release is a misnomer which should never have been used.

The Board takes AECB's stipulation that decommissioning should be completed within decades to preclude Restricted Site Release as an option because of its potential for centuries of entombment.

It is now clear that Restricted Site Release is not really an option; and the Board recommends acceptance of Hydro's choice of Deferred Dismantlement, noting that Immediate Dismantlement requires more complex tooling and procedures to limit radiation exposure and consequently, is more costly.

ONGA favoured the Immediate Dismantlement option because it would result in a matching of costs and revenues. However, it seems to the Board that the other options would do so as well.

In recommending a provision for nuclear decommissioning on the basis proposed by Hydro and in view of the huge funds involved, the Board sees a need for Hydro to check and report yearly on each of the key factors in its determination, not just the interest and escalation factors. This is to ensure that significant changes in valuation do not go unrecognized since to do otherwise might make such provision inequitable between current and future customers. The Board's comments elsewhere in this report on the similar provision for irradiated fuel management are applicable here as well.

Depreciation

The revenue requirement include $416 million for non capitalized depreciation in 1983, which is an increase of $67 million or 19 percent over 1982. Most of this increase is attributable to two factors. One is the inclusion of an amount of $32 million per year commencing in 1983 to provide for the removal of failing fuel channels in certain nuclear generating units. The other is for Pickering Unit 5, which is due to be placed in service in April of 1983. Table 4 on the next page shows the depreciation calculation for 1983 on a comparative basis to other years.

The Depreciation Review Committee recommended that the estimated service lives be unchanged since this minor revision has an insignificant effect on the basic depreciation charge in 1983.

Hydro also revealed during the hearing that it plans to sell some $10 million worth of surplus lands in 1983. The cost effect of gains from these sales have not been included in the determination of the revenue requirement. However, Hydro has estimated that taking them into account will reduce depreciation by $5 million. Accordingly, the Board recommends that the revenue requirement in 1983 be reduced by that amount.

Board Counsel contended that Hydro has a consistent bias towards over estimating depreciation charges, noting especially that Hydro forecast depreciation in 1980 at $345 million, compared to an actual of $306 million; and in 1981, a $352 million forecast, compared to an actual of $324 million. He said that this means that Hydro's rates were set too high, which implied that the proposed rates for 1983 might be too high also.

Ontario Hydro pointed out that its depreciation charges in 1980 were less than predicted because Hydro had accepted the Board's recommendation in H.R.8 that the amortization rate for deferred construction projects

Table 4

DEPRECIATION CALCULATION FOR REVENUE REQUIREMENT

$ Millions

	Projection	Plan	Forecast		
	1981	1982	1983	1984	1985
Basic depreciation	374	399	442	550	662
Amortization					
Deferred projects (Bruce HWP "D")	16	16	16	16	16
Future use assets	7	7	6	6	6
Asset removal/disposal					
Fuel channel removal	0	0	32	32	32
Nuclear decommissioning	0	14	12	16	20
Adjustments	1	4	4	4	6
TOTAL DEPRECIATION	398	440	512	624	741
Less depreciation:					
Capitalized in capital program (heavy water)	(51)	(66)	(66)	(66)	(67)
Capitalized in capital program (construction)	(20)	(23)	(28)	(32)	(37)
Charged to fuel for electric generation	(2)	(2)	(2)	(2)	(2)
DEPRECIATION (Non Capitalized)	325	349	416	525	634

Source: Exhibit 7, table 3.11.

should be half the normal depreciation rate. Hydro attributed the lower than forecast depreciation charge in 1981 to the cancellation of the Wesleyville construction project. It submitted that it was unreasonable to expect it to forecast such extraordinary items and that when these two items are considered, its depreciation forecasts have been more than reasonable over the past several years.

The Board is satisfied that there is insufficient reason on the basis of Hydro's forecasting record to reduce its provision for depreciation in the 1983 revenue requirement.

Debt Retirement Program

Hydro's borrowing program is supported by a debt retirement program aimed at improving the marketability of its bonds. Hydro uses the statutory debt retirement appropriation portion of its net income, supplemented by other funds at its discretion, for premature retirement of its bonds and those of the Province of Ontario issued on its behalf. Hydro also maintains a bond trading program to enhance their market availability further, as well as to help keep down its interest rates in comparison to those of other borrowers.

AMPCO noted that some $146 million or about 28 percent of Hydro's bond retirement program in 1983, represents mostly Province of Ontario bonds issued in the United States market by the Government of Ontario on Hydro's behalf. AMPCO submitted that the debt management operation of Hydro, in seeking to buy and retire Provincial bonds, duplicates the debt management function of the Financial Management Branch of the Ministry of Treasury and Economics. It recommended that the former rather than the latter be eliminated because such an extensive operation is inconsistent with Hydro's primary electric power supply function and because such an operation should be publicly accountable through the Legislature.

Hydro's response to AMPCO's argument in this regard was that it was not supported by the evidence.

Such an interpretation of AMPCO's argument, in the Board's view, requires that a clear distinction be maintained between the "Ontario Hydro bond" issued by the Province of Ontario on behalf of Hydro, and the "Ontario Hydro bond" issued by Hydro to the Government of Ontario (in recognition of its debt obligation to the Province for the proceeds of the Province's bonds issued on Hydro's behalf).

Hydro submitted that it would be inappropriate for the Ministry of Treasury and Economics to take over the management of Hydro's debt. Hydro considered that this Ministry properly provides Hydro with direction on government policy and reviews Hydro's borrowing activities in its role of guarantor; but submitted that its debt management relates specifically to the utility and its operation.

Here again there is a need to distinguish clearly between Hydro's debt management -- meaning the management by Hydro of the Province of Ontario's debt on its behalf -- and the management of that debt by the Ministry of Treasury and Economics.

It is not clear to the Board how much duplication or overlap of debt management there is. Since Hydro must presumably manage the remainder of its debt, it might, in the Board's view, be preferable for Hydro to continue to manage all of its debt.

There was no estimate of the potential effect of cost savings on the 1983 revenue requirement; and in any event, the Board is not satisfied that the implementation of AMPCO's proposal is warranted at this time.

In reviewing this matter, however, the Board notes that in its H.R.10 report it commented that the sinking fund alternative had not been evaluated and suggested that Hydro "perhaps should pursue this matter further." As Hydro has yet to show any inclination to do so and as this alternative, in the Board's view, merits evaluation, such pursuit is now being recommended.

AMPCO also drew attention to the cost consequences of the policy on accounting for premature debt retirement which was approved by Hydro contrary to the Board's recommendation and implemented effective June 1, 1981.

AMPCO stated that in last year's rate hearing, the policy impact on the 1982 revenue requirement was predicted to be only $7 million, as compared to an actual of $90 million in 1981 and an estimate of $91 million for 1983.

AMPCO contended that the policy was creating instability of results; that the auditors had qualified the 1981 statement in respect to the policy; and that Hydro, by a number of such policy changes and its accounting applications was loading costs onto present customers and in so doing, destroying accounting comparability with other utilities and with itself on a year to year basis. Consequently, AMPCO submitted that this Board should recommend reversal of the policy.

Hydro rejected all of AMPCO's contentions as unfounded.

The Board considers that the explanatory note to the financial statements in respect to this policy does not appear to be in the nature of an audit qualification.

The Board notes that AMPCO mis-stated the impact of the policy in 1982. The amount was $55 million rather than $7 million. In view of this, the Board is satisfied, that the policy should not be rescinded on this basis.

In respect to the alleged loading of costs on to present customers, it appears to the Board that certain accounting policies (such as this one) are in fact causing some costs to be shifted from future to present customers, but that Hydro appears to be doing so on an equitable basis in order to correct a perceived imbalance.

Heavy Water

In response to a Board interrogatory, Hydro provided some information on its heavy water program but it did not disclose the cost components involved in the production as it submitted that the release of such information might prejudice the beneficial sales of heavy water. The information submitted is reproduced as Table 5 on the following page.

Hydro did however state that the dollar impact on net income of the interest coverage application on heavy water plant and production in 1983 would total $85 million. It attributed $48 million to inventory of heavy water and the balance of $37 million to its production.

Board Counsel took this information to mean that Hydro was confronted with an excess of heavy water. Hydro acknowledged that the production schedule for heavy water was under a full scale review because Hydro

Table 5

PRODUCTION AND USAGE ON HEAVY WATER

Heavy Water Inventories

Heavy water inventories as of December 31, 1981 were:

Pickering NGS-A Authorized	2 151 Mg
Bruce NGS-A Authorized	2 964 Mg
Stored for Future Use	1 919 Mg
Total	7 034 Mg

Heavy Water Production Capacity and Production Forecasts

Year	BHWP-A Production Capability (Mg)	BHWP-A Production Forecast (Mg)	BHWP-B Production Capability (Mg)	BHWP-B Production Forecast (Mg)
1982	676	676	552	552
1983	676	676	645	645
1984	676	658	676	657
1985	676	525	676	525
1986	676	474	676	475
1987	676	475	676	474
1988	676	460	676	461
1989	676	460	676	461
1990	676	460	676	461
1991	676	460	676	461

Heavy Water Usage

Year	Opening Future-Use Inventory	Production(1)	Demand for(2) New Stations	Losses(3)	Sales(4)	Ending Future-Use Inventory
1982	1 919	1 228	1 302	59	3	1 783
1983	1 783	1 321	1 443	66	3	1 592
1984	1 592	1 315	644	71	3	2 189
1985	2 189	1 050	715	78	3	2 443
1986	2 443	949	1 480	87	3	1 822
1987	1 822	949	765	92	0	1 914
1988	1 914	921	765	97	0	1 973
1989	1 973	921	765	105	0	2 024
1990	2 024	921	0	109	0	2 836
1991	2 836	921	0	111	0	3 646

(1) 1982-1987 Production Plan plus extrapolation, May 1981. Currently under review.
(2) Demands as of April 1982.
(3) Losses: 1982 estimate.
(4) Firm sales contracts only.

Source: Abstracted from Interrogatory Exhibit 43-0-50.8

considered that the forecast production may be excessive; but insisted that a reduced production level would have no effect on the 1983 revenue requirement.

Board Counsel disagreed, contending that altering the production level indirectly impacts on net income. For illustrative purposes, he proposed a schedule which would place in inventory at year end, sufficient heavy water to meet the next year's requirement and which demonstrated how this could reduce net income by nearly $4 million in 1983.

OMEA, noting that BHWP A had recently been operating at about half capacity, made a somewhat similar submission, with an estimated reduction in the 1983 revenue requirement of $24 million.

Hydro faulted both submissions for their "simplistic" approaches which ignored cost considerations and would require wide variations in production levels that could exceed production capacity or create shortages, as well as for their failure to take into account that about three quarters of the costs of producing heavy water are fixed and cannot be reduced by changing the production level. Hydro revealed that the preliminary results of its review indicated that the potential effect would be to lower the 1983 revenue requirement by less than half a million dollars. It did not, however, disclose the production level involved.

The Board has difficulty understanding why Hydro has proposed the production of heavy water in 1983 at full capacity for both plants, when recently these have been operating well below full capacity and there is neither a short term nor long term need for full capacity production.

The Board can only attribute the small reduction of the 1983 revenue requirement indicated by Hydro's preliminary review to be but a small reduction in planned production of heavy water in 1983. In the Board's view, the circumstances are such as to indicate the need for Hydro to reduce its heavy water production schedule significantly, commencing in 1983, but not nearly as much as suggested by either OMEA or Board Counsel.

The Board recommends a reduction of heavy water production in 1983 by some 200 Mg or about 10 percent. It considers that this would continue to provide an adequate supply and would not preclude a relatively stable production level thereafter.

The Board estimates that this decrease in production would reduce the revenue requirement in 1983 by $1 million, which it recommends.

In the Board's opinion, Hydro's review of heavy water should embrace all aspects of the subject and not just scheduling. Further, it is of sufficient importance to merit early completion so that its results will be available for consideration during next years hearing.

Cash Management Study

In response to a Board interrogatory, Hydro advised that:

> "During 1981 and 1982, considerable effort has been devoted to reviewing and improving cash management policies, systems and procedures. As part of this continuing process, cash flow forecasting information requirements have been reviewed and forecasting systems have been improved upon. The cash flow forecasting systems are now computerized and provide annual, quarterly and weekly forecasts.
>
> A number of changes which will improve the management of cash inflows and outflows have also been identified. For example, changes have been made to speed up cash transfers to head office bank accounts and to ensure payments are made only when due. Changes have also been made to the criteria used to determine when a municipal utility or direct industrial customer's payment is past due.
>
> In November, 1981, a cash management study was initiated by the Finance Branch. When completed, this will document, analyze and recommend improvements to the policies, procedures and systems for managing cash inflows and outflows, banking, cash forecasting and the provision of associated information. The first phase of the study, which concentrates primarily on cash flow forecasting, is completed. This phase also documents developments in cash management, and in the present cash flow forecasting process and provides a number of cash management related recommendations. A report covering Phase I is in preparation and will be provided to the Ontario Energy Board as soon as it is available."

The Phase I report of this Cash Management Study, dated April 1982, was subsequently filed. This report lists a number of recommendations which could provide immediate improvements in cash flow and which together represent maximum potential annual corporate savings of about $9 million, excluding implementation and additional costs which have yet to be calculated.

Most of the recommendations involve shortening the time allowed for incoming payments and ensuring that outgoing payments are not made before they are due.

The report cautions that a number of the recommendations may have serious implications on both customer relations and support systems, which have yet to be studied. The report has been reviewed by senior Finance Branch management but has yet to be submitted to the Board of Directors.

One recommendation is to expedite amendments to the Power Corporation Act which would permit Hydro to establish an appropriate rate of interest to be charged on past due municipal utility power and energy bills, resulting in an estimated potential saving of $800,000. Present legislation now limits the rate of interest charged on past due municipal utility power bills to 9 percent per annum. In the last quarter of 1981, interest payments by municipal utilities on past due power bills totalled $248,000 -- a rate of nearly $1 million per year.

Most of this interest is attributable to about 10 municipal utilities which consistently pay their power bills after the due date and which are apparently taking advantage of the situation to avail themselves of some low cost financing at the expense of Hydro and its other customers.

The report recommends moral suasion to improve the timeliness of power bill payments by those municipal utilities that make a practice of paying their power bills late, pending amendment of the Power Corporation Act. The recommendation to amend this act was contained in last year's H.R.10 report but Hydro has yet to draft and prepare such amendments.

Board Counsel was enthusiastic about the prospect for early savings and impatient for rapid action to implement the Phase I recommendations and proceed with Phases II and III. He could see no reason why all phases of the study could not be completed by next year's rate case, providing adequate resources are allocated.

He considered that it would be reasonable to assume that Hydro could have all the Phase I improvements in place by 1983. He submitted that the cost savings were soundly based and conservatively estimated; that there may be other immediate improvements yet to be identified; and that the implementation costs would be minimal. He therefore recommended that the Board assume that a minimum $9 million net savings could be realized in 1983 by a timely implementation of many or all of the proposals. Furthermore, that an arbitrary reduction could be made of that amount in the rate level for 1983 in order to provide an incentive to Hydro to improve its efficiency. Furthermore, he considered it reasonable to assume that substantially larger sums will be saved through a more efficient operation resulting from the recommendations which will be revealed in the balance of the study. Accordingly, he submitted that it would be reasonable for the Board to reduce Hydro's rates by a total of $15 million in respect to the Cash Management Study.

Noting that only the first phase had been completed and that the costs of implementing all stages had yet to be assessed, Hydro submitted that it would be premature to make any change to its revenue requirement because of this study. It rejected Board Counsel's suggestions that the study is being conducted at a leisurely pace and that its phases are not going to overlap, as being contrary to the evidence.

The Board notes that one of the recommendations -- to reduce the time for payment without penalty of power and energy invoices by municipal utilities from 15 to 10 days after billing date -- would conflict with the Ministry's guidelines for customer payment without penalty within 16 days after invoicing, and as well, could put a cash squeeze on municipal utilities.

The Board is reluctant to endorse implementation of these recommendations until the study's report has been approved by Ontario Hydro's Board of Directors.

However, the Board's recommendation regarding the amendment of the Power Corporation Act in respect of the maximum interest rate applicable to overdue municipal utility accounts, was accepted last year by Hydro's Board of Directors. The Board therefore considers that the study's recommendation to expedite that amendment is in order and should be implemented forthwith.

The Board is accordingly recommending a reduction in the revenue requirement by $1 million on this account.

Fuel Channel Removal

Included in depreciation expense in 1983 is a $32 million ($25.7 million net of nuclear payback credit) contribution to a sinking fund provision for the estimated cost of removal of fuel channels at Pickering in the 1985-1990 period and at Bruce in the 1993-1998 period. This portion of the work of replacing the fuel channels is treated by Hydro as negative salvage which must be provided for in depreciation as "Hydro's depreciation policy requires that removal costs be recognized in asset service costs, if, as, and when they are significant, and can be reasonably predicted to differ from salvage recoveries".

The Depreciation Review Committee's report of January 1982 makes reference to a technique called REFAB for "repositioning of end fittings and bearings" which is being considered for application at Pickering NGS A; and which could postpone fuel channel replacement by about 10 years. That committee, in deciding that full provision for fuel channel removal costs should be included in depreciation expense in 1983, considered REFAB but made no allowance for it.

Hydro has since acknowledged that the REFAB technique is expected to be applied to Pickering Units 1 and 2, with a consequent reduction in the 1983 revenue requirement of $1 million net of nuclear payback credit.

Hydro pointed out, however, that as the fuel channels in Pickering Units 3 and 4 and Bruce Units 1 to 3 are of a different material which is more susceptible to cracking, the prospect of Hydro using the REFAB process for these was slightly less than 50 percent. Hydro indicated that if it could apply the REFAB technique to all seven units, there would be $12.2 million less revenue required, net of nuclear payback credit, for depreciation expense each year commencing in 1983.

AMPCO called the provision for fuel channel removal both speculative and premature. It found it remarkable that this stemmed from "a merely a 'refinement'" of existing policy as to the definition of service cost of depreciable assets; and that Hydro had received unqualified audit approval of this provision in advance despite uncertainties as to the ultimate cost and timing.

Board Counsel faulted Hydro for delayed and incomplete disclosure of information in this and other matters. He questioned whether the $28.4 million expenditure already committed for engineering work and tooling in preparation for fuel channel replacement was being well spent, as such replacement may not take place for another ten years. Hydro responded "that the engineering design and tooling development work now underway will be of value when replacement does occur and meanwhile it will enable Hydro to remove cracked channels in an emergency".

Board Counsel noted that Hydro's prospect of using REFAB on Pickering Units 3 and 4 and Bruce Units 1 to 3 had improved since last year and that it was now almost 50 percent; that studies are continuing and that Hydro expects to be in a better position a year from now to know with more certainty whether REFAB is applicable to Pickering Units 3 and 4 and Bruce Units 1 to 3. He submitted, therefore, that the lower cost option (REFAB) should be accepted as a basis for funding until better evidence is available and that the revenue requirement should be reduced accordingly by $12.2 million per year.

In reply, Hydro submitted that the revenue requirement should be based on the most probable expectation which, in Hydro's opinion, was that REFAB will not be applied to Pickering Units 3 and 4, nor to Bruce Units 1 to 3.

The Board notes that the committee considered REFAB but decided to provide the full funding required for the replacement option, because that was in accordance with the current plans and because the estimated costs were to be subject to review and prospective adjustments. That seems to the Board to be a decision to fund the higher cost option fully in advance, with some expectation that funding might subsequently be trimmed if the lower cost option qualifies.

The Board is concerned that if full funding of the higher cost option is made in advance, there will be little incentive to take the lower cost option. Furthermore, if full funding of the higher cost option is provided but the lower cost option is taken, present customers will have overpaid and it is not possible to reimburse them later. On the other hand, if full funding of the higher cost option is not made, but subsequently the higher cost option is taken, present customers will not have paid enough and it is not possible to collect more from them later.

In the Board's view, such a situation requires funding of each option in proportion to the probability of its occurrence in order to treat present and future customers equitably.

Hydro has accepted that REFAB is applicable to Pickering Units 1 and 2 at a revenue reduction of $1 million per year, net of nuclear payback. If the

REFAB technique were to be applicable to the remaining units, Pickering Units 3 and 4 and Bruce Units 1 to 3, the revenue reduction would be $11.2 million ($12.2 - $1.0) per year. However, the probability that REFAB will be applicable to these units is slightly less than 50 percent, so the funding reduction should be somewhat less than half or about $5.0 million per year. The Board therefore recommends a reduction in the depreciation provision for fuel channel removal of $6.0 million ($1.0 + $5.0) per year, net of nuclear payback credit.

It is not clear to the Board whether the depreciation provision, after this reduction, of $19.7 million ($25.7 - $6.0) per year, net of nuclear payback credit, is wholly related to the removal of fuel channels. It is conceivable that part of this prefunding is for REFAB. If it is, the Board would question whether it is appropriate under Hydro's depreciation rules to fund the application of a repair technique such as REFAB in advance in the same manner as it does for the removal portion of a replacement operation.

This may indicate a further reduction, but the Board does not have sufficient information on which to make such a determination. However, the Board recommends that the matter be more thoroughly examined at Hydro's next appearance before this Board.

Capital Cost Control

In its H.R.10 report last year the Board observed that:

> "Time did not permit an in depth review of the causes of the capital cost overruns, and the Board must agree that there is not enough evidence before it to comment on the effectiveness or otherwise of Ontario Hydro's capital cost control procedures. But, on the face of it, the Board is only reasonably satisfied that the explanations given by Ontario Hydro account for the major part of the cost overruns. Although the Board is aware that a Select Committee of the Legislature has recently examined this whole matter, it is recommended that an examination of capital expenditure and cost controls be undertaken by the Board in the near future, but not in 1982 when the Board expects to review a number of other issues in addition to those usually related to the regular bulk power rate hearing".

Notwithstanding this observation, Board Counsel in this hearing made a very cursory comparison of the original cost estimates of some of Ontario Hydro's under construction generating plants with the latest estimates.

He noted the vastly increased cost estimates, especially the doubling of the estimate for Darlington to $8 billion. He observed that there does not appear to be any mechanism which would trigger a re-evaluation of the need for capital expenditure when a change in escalation factors causes the forecast cost to rise, since this is left to management judgment.

He submitted that there should be serious concern about the tendency to index costs to inflation automatically without a re-evaluation of the need or scope of the program. He also suggested that very little has been accomplished in terms of practical programs to control these capital costs since the matter was raised last year.

He submitted that special attention should be directed to Hydro's controls over capital spending in 1983, during the hearing of the 1984 rate proposal. As well, that the review entailed should focus on management control systems over capital expenditures rather than on system expansion issues.

Hydro replied that Board Counsel had ignored relevant evidence and indicated that it had tempered its response in view of the Board's expressed intent to avoid this issue in this year's hearing.

Hydro contended that it was sound management practice to incorporate a consistent economic outlook by updating its project estimates to include increased forecast escalation and interest rates.

The Boards finds the escalating costs confusing and considers that some means of deflating and discounting such costs may be needed in order to measure their real changes in a meaningful manner. Perhaps there is even need to measure the cost of capital projects in three dimensions: real cost, inflation and interest.

The Board is concerned at the apparent discontinuity in project responsibility and accountability. As the Board understands the evidence, System Planning obtains approval to release the project from the Board of Directors based on a cost estimate by Design and Construction; and then turns this over to Design and Construction to proceed with the project and to prepare a definitive estimate within one year. Once the definitive estimate is available and approved by the Board of Directors, it is then used instead of the release estimate as the measurement basis.

Design and Construction clearly does not hold itself accountable to the release estimate; and it appears that the closing project review by the Board of Directors is the definitive estimate. It seems that the project expenditures are never measured directly against the original estimate -- the basis on which the project was released. The definitive estimate is checked, however, by System Planning to ensure that the project is still viable. That check is to ensure that its discounted lifetime costs still compare favourably with the discounted lifetime costs of other forms of electrical generation by Hydro. The economic viability is evidently not tested competitively with other forms of energy nor even with electricity from other suppliers; nor was there mention of any check to ensure that the need for the project had not diminished. But it was stressed that the review of the definitive estimate was intended to provide for either confirmation or cancellation of the project commitment. Since equipment is ordered upon release and the definitive estimate may take as long as three years (as in the case of Darlington), cancellation charges can and have been substantial.

There is still insufficient evidence on which to make firm conclusions and recommendations. These provisional observations are made to reinforce the Board's earlier recommendation that the adequacy and effectiveness of the control of capital costs should be examined in next year's hearing.

Borrowing Requirement

Hydro's total funding requirements of $4,154 million in 1983 are up by $710 million or 20.6 percent over 1982. Its internally generated funding which is estimated to be $1,017 million in 1983, is up by $226 million or 28.6 percent over 1982. Hydro plans to borrow the difference of $3,137 million in 1983, which is $484 million or 18.2 percent more than in 1982. Hydro has forecast that only $2,445 million will be available to it in 1983 from its primary capital markets, which is $112 million or 4.8 percent more than in 1982.

As Hydro cannot rely on the availability of Canada Pension Plan ("CPP") funds, it plans to supply the balance of funding by increasing its use of short term notes in 1983 by $692 million, which is more than double the 1982 increase for the same purpose.

The borrowing requirements and capital availability from various markets are shown in comparison to other years in Table 6 on the following page.

AMPCO drew attention to the growth in the provision of funds for debt retirement but made no recommendation in this respect for modification of the rate proposal.

Hydro stated that secondary debt markets, including CPP funds, foreign debt in other than American dollars, private placements and lines of credit are being reviewed and will be accessed if they are available and cost effective in lieu of short term notes.

The trend is to a larger proportion of the debt from the primary markets to be of intermediate term. Even so, in view of the interest premium on long term over medium term bonds, OMEA expressed concern at the substantial long term indebtedness being incurred by Hydro at premium rates. It recommended that Ontario Hydro should shift, whenever possible, toward intermediate debt, at least until the current period of economic uncertainty has ended.

Hydro replied that in order to spread the risk of future movements of interest rates, it plans to issue significantly more intermediate term debt in 1982 and 1983 than in the recent past; but considers that economic uncertainties make it prudent for Hydro to do some long term financing to hedge against the possibility that interest rates will move even higher. The Board accepts

Table 6

BORROWING PROGRAM

	1981		(1982-1981)		1982		(1983-1982)		1983	
	$M	%	$M	%	$M	%	$M	%	$M	%
Net Additions to Fixed Assets	2125	73.3	909	166.8	3034	88.1	452	63.7	3486	83.9
Retirements	547	18.9	91	16.7	638	18.5	25	3.5	663	16.0
Other Changes	227	7.8	(455)	(83.5)	(228)	(6.6)	233	32.8	5	0.1
Total Funding	2899	100.0	545	100.0	3444	100.0	710	100.0	4154	100.0
Canadian Public Issues	568	19.6	432	79.2	1000	29.0	200	28.2	1200	28.9
U.S.A. Public Issues	660	22.8	317	58.2	977	28.4	(89)	(12.5)	888	21.4
Eurodollar Issues	542	18.7	(186)	(34.1)	356	10.3	1	0.1	357	8.6
Primary Markets	1770	61.1	563	103.3	2333	67.7	112	15.8	2445	58.9
CPP Funds	500	17.2	(500)	(91.7)	---	---	---	---	---	---
Increase in Short term Notes	(132)	(4.6)	452	82.9	320	9.3	372	52.4	692	16.6
Total Borrowing	2138	73.7	515	94.5	2653	77.0	484	68.2	3137	75.5
Internally Generated Funds	761	26.3	30	5.5	791	23.0	226	31.8	1017	24.5
Total Funding	2899	100.0	545	100.0	3444	100.0	710	100.0	4154	100.0

Source: Abstracted from Exhibit 5, Tables 5D3, 5D4.

that Hydro should strive to balance the risk of fluctuating interest rates and recommends acceptance of the 69 percent intermediate term proportion that Hydro plans in 1983.

OMEA contended that the model used by Hydro to determine capital availability was not an equation for supply of capital since the interest rate term has a negative coefficient. OMEA suggested that the Hydro equation models the confluence of demand and supply. It submitted that there was need for models to identify these separately, as it is supply relative to demand that, in fact, determines capital availability.

Hydro defended its model for predicting capital availability for other than short term loans as being one that provides forecasts that are in accordance with experience. It argued that in conditions of uncertainty, investors become less willing to make longer term commitments for funds as interest rates rise.

It seems to the Board that OMEA is looking at the increase in total capital availability -- both long and short term -- with an increase in interest rates while Hydro is looking only at the shrinking share of the total market captured by long term issues as interest rates increase. While Hydro's model may reflect reality, the Board is reluctant to place full reliance on it alone. It would have been helpful to have had evidence about the total market and the complementary increase in the short term share of the market, to corroborate the decrease in the long term share.

Board Counsel observed that Hydro's forecast of medium to long term capital availability appeared to be conservative and that the consequent use of short term notes with higher interest rates imposed an additional interest cost of $3 million. He noted that some CPP funds may become available, and contended, as did AMPCO, that cancellation of some of the megaprojects should ease the demand for capital. He submitted that the evidence indicated that even when other offsetting factors are considered, the prospect that more long term capital will be available to Hydro has improved since Hydro's proposal was put together. He therefore recommended that the revenue requirement be reduced by $3 million to reflect such improvement.

Hydro replied that the submissions of AMPCO and Board Counsel were not supported by the evidence. Nor was Hydro prepared to change its forecast of capital availability, despite cancellation of some of the megaprojects, because of offsetting factors such as greater than anticipated government deficits.

The evidence suggests to the Board that the supply of capital may have improved since Hydro's proposal was made; that Hydro's forecast of capital availability may not be totally reliable; and that no provision has been included for any capital from secondary markets. The Board considers that some reduction in the use of short term debt and the attendant cost is warranted, but not the full amount suggested by Board Counsel. In the Board's view, a reduction of $1 million in the revenue requirement on this account more realistically reflects the probabilities. Such reduction is recommended.

Board Counsel noted that Ontario Hydro's policy on hedging was changed in June last year. Although cross examination of that hedging policy took place subsequently in July of last year, such change was not revealed to the Board until this year's hearing. While there were extenuating circumstances, such an occurrence is so rare that the Board considers it noteworthy as conduct which is counter productive to the hearing process.

Net Income

Net income comprises the statutory provision for debt retirement and a discretionary contribution to the reserve for contingencies and stabilization of rates. Ontario Hydro's proposed provision for net income of $558 million in 1983, together with a comparison to previous years, is shown in Table 7 on the following page.

Table 7

NET INCOME ANNUAL COMPARISON

	Actual 1981		<1982-1981>		Estimate 1982		<1983-1982>		Forecast 1983	
	$M	%NR	$M	%	$M	%NR	$M	%	$M	%NR
Debt Retirement	152	5.5	14	9.2	166	5.4	17	10.2	183	5.0
Rate Stabilization	284	10.3	(64)	(22.2)	220	7.2	155	70.5	375	10.4
Net Income	436	15.9	(50)	(11.5)	386	12.6	172	44.6	558	15.4
Net Revenue (NR)	2748	100.0	316	11.5	3064	100.0	553	16.0	3617	100.0

Source: Abstracted from Exhibit 5, Table 5A2.

Thirty one percent of the $553 million increase in the net revenue requirement in 1983 is attributable to an increase of 45 percent ($172 million) in net income.

Hydro's current policy for establishing net income is based on three factors: the level of rate increase, capital availability and financial soundness. Financial soundness is assessed against a target debt ratio range of 0.80 to 0.82 and an interest coverage ratio of 1.35. This net income policy framework is currently under review by the Provincial Government. Hydro expects that net income requirements for the years beyond 1983 could be affected by the results of that review.

When questioned in this respect, Hydro acknowledged that the net income requirement for 1983 could also be affected by the results of that review, if such results are known in time to be taken into account by Hydro in its final determination of its rates for 1983.

Hydro has indicated that consistently setting net income to achieve an interest coverage ratio of 1.25 would cause the debt ratio to decline and stabilize over the next several years at 0.77, well below the targeted ratio range of 0.80 to 0.82.

Hydro considers its combination of not achieving the interest coverage target while achieving a better than targeted debt ratio, to be a rational long term approach to net income planning and an appropriate basis for the development of short term net income plans.

However, because exceptionally large operating cost increases are anticipated in 1984 and 1985 due mainly to bringing into service capital intensive nuclear generating stations, Hydro intends to adjust the interest coverage ratio each year to help smooth the rate increases required as shown below rather than use a constant interest coverage ratio of 1.25.

NET INCOME PLAN

	1982	1983	1984	1985	1986
Average rate increase (%)	9.6	13.9	16.4	16.2	12
Interest coverage ratio	1.23	1.275	1.225	1.175	1.275
Debt ratio	0.839	0.836	0.835	0.835	0.824

In addressing the matter of net income determination, the Board notes that this year's letter of reference did not stipulate an interest coverage ratio as in the past.

AMPCO took such omission to mean that the matter of net income had been placed before the Board for its own independent evaluation and decision, within the context of similar examinations in the past and the rate stability objective. In this respect it also noted that the government committee established more than two years ago to examine the entire issue of credit worthiness and net income, had not yet reported. Board Counsel took the omission to be due to a recognition of changing economic conditions and the rather unique circumstances which exist today, as well as to signify that, at least, the Minister would like some fresh input from the Board.

Hydro pointed out that the Minister in a letter dated December 22, 1981 to Ontario Hydro suggested that it should develop its 1983 net income using the criteria established for previous years.

In the Board's view, the evidence and argument in this proceeding clearly indicate that a review of the factors affecting credit worthiness is a prerequisite to the determination of an appropriate level of net income to be recommended for inclusion in the 1983 revenue requirement. Furthermore, such review may also be of assistance to the government committee addressing this same issue.

While AMPCO supported the continued operation of Hydro as a financially stable organization, it was concerned about the impact that the proposed rate increase would have on industry. AMPCO submitted that the real need for the net income requested had not been demonstrated; that there is no evidence that Ontario Hydro's credit rating would be reduced if the existing debt ratio were to be maintained and the interest coverage ratio reduced; that a quarter billion dollar writeoff which increased the debt ratio had not affected Hydro's credit rating; that there is little if any evidence that a superior financial position would reduce interest costs; that high levels of net income are not required to improve Ontario Hydro's financial position relative to other provincially owned utilities; and that the underlying credit worthiness of the Province rather than that of Ontario Hydro determines the terms on which the Province can borrow. AMPCO recommended that, in general, Hydro should maintain or even increase its debt ratio until the rapid escalation of its capital expansion program slackens and, specifically, that the 1982 interest coverage ratio of 1.23 should be maintained in 1983 with a consequent reduction of $92 million in net income. OFA supported AMPCO's position.

The Board has taken the thrust of AMPCO's submission to be the avoidance of a debt ratio reduction until after the slackening of the in service expenses of the new nuclear units in 1984 and 1985. The Board notes that Hydro's proposal differs only in degree.

In a similar vein, Board Counsel suggested postponing the commissioning of nuclear units until the economy improves; or else using the fund for stabilization of rates to delay or offset the impact of the in service charges of nuclear units in 1984 and 1985.

The Board considers that attempting to delay declaring in service nuclear generating units on their completion would only serve to shift costs from current to future customers inequitably. However, the Board would not rule out drawing upon the rate stabilization fund to smooth rate increases.

Board Counsel considered Ontario Hydro's financial targets to be outmoded. He submitted that as Hydro's financial attractiveness to lenders had improved relative to other borrowers whose financial ratios have deteriorated, there was less interest coverage needed now by Hydro than previously, even though Hydro disagreed.

Board Counsel submitted that Hydro prospers through inflation and called the determination of net income as a fraction of gross interest, a form of indexing. He pointed out that as its excess capacity, capital expenditures, borrowing and interest costs increase, so also does Hydro's net income -- contrary to what might be expected and to what actually occurs in business generally.

The Board sees other conceptual difficulties with the reverse process of working back from the interest coverage ratio to net income.

If Hydro were to have little debt or interest expense, net income derived in this manner would be near zero and return on equity and on rate base would also be near zero, even though equity would almost equal assets. On the other hand, with considerable debt and interest expense, the procedure yields high net income with extremely high ratios of return on equity and on rate base, because the equity and rate base are small.

Such a result might be reasonable if it were to be considered that risk varies inversely with equity; but where customers are in effect also the shareholders, that relationship does not seem hold. Indeed, as customers pay both interest cost and net income in their rates, they should be almost indifferent to the debt/equity ratio. Furthermore, their risk as shareholders in having to default on interest payments is the same as the risk in not paying their own Hydro bills. Similarly, their risk as shareholders of not earning adequate net income, is again the same as the risk of not paying their own Hydro bills.

Since there are no dividends, all net income is retained for the benefit of future customers. The real effect of increasing the net income provision is to shift more costs from future to current customers with questionable improvement in financial soundness. Such soundness really depends upon the willingness and ability of customers to take and pay for power. That, in turn, is more dependent upon the competitive position of electricity in relation to other fuels than is the ratio of net income to interest expense. From that viewpoint, it even appears that financial soundness -- the assurance that interest expense will be paid -- might be improved by reduction of net income and, in turn, of equity. In the final analysis, Hydro's financial integrity rests on its strong competitive position, gained from the low fuelling costs of its hydraulic and nuclear generation.

At least near the extremes of the debt/equity ratio, it can be seen that the determination of net income as a fraction of interest expense produces nonsensical values and, within that range, it rewards rather than penalizes borrowing for capital investment. All of which might suggest the optimum condition to be an interest coverage factor of 1 and no equity.

Hydro does not consider that its net income proposal amounts to moving to a higher level of financial soundness. It does, however, consider that the proposals of both Board Counsel and AMPCO would lower the level of financial soundness.

Ontario Hydro argued that its proposal meets the terms of the letter of reference regarding the stability of rates considerably better than the proposals put forward by AMPCO and Board Counsel. Hydro's assumption was that interest coverage ratios proposed for 1983 by AMPCO and Board Counsel were to be maintained subsequently. The Board does not see that such assumption is warranted.

Hydro indicated in Exhibit 88 that estimated costs have increased by $45 million over those contained in its rate proposal; and that on the basis of the proposed rates this means a reduction of $45 million in net income resulting in an interest coverage factor of 1.25. Hydro considered that the Board should recommend restoration of its interest coverage ratio to 1.275 in order to restore its net income to the proposed level of $558 million.

With regard to financial ratio targets, OMEA took the position that since the government is currently reviewing these issues, it would be inappropriate for Ontario Hydro to change its policy for net income determination at this time, as any move away from current financial targets might be counter to the Government's position. OMEA accordingly submitted that the Board should recommend that Hydro continue to pursue its long term financial targets in 1983. In the view of OMEA:

- A reduction of the revenue requirement that increases the debt ratio does not constitute a real saving as it merely shifts such revenue requirement to future years, unless the debt ratio target is increased.
- The high cost of debt indicates a need for debt minimization that makes an increase in the debt ratio inappropriate.
- Heavy system reliance on nuclear technology makes the assurance of financial soundness particularly important as there is a remote possibility of a very high cost event.
- It is appropriate to require current users to share the cost of reducing the unproductive debt associated with the excess capacity of the system with future users.

ONGA, noting that Hydro had consistently failed to meet its interest coverage target, submitted that Hydro should be required to adopt a firm interest coverage target and set its income commencing in 1984 for rate making purposes on that basis.

The Board notes that Exhibit 68.47 indicates that the consistent application of an interest coverage ratio of 1.20 would result in the debt ratio settling gradually over several years to a level of 0.81 -- in the centre of the target range of 0.80 to 0.82.

Since it has been indicated that the consistent application of an interest coverage ratio of 1.25 would cause the debt ratio to decline and stabilize below the target range at a level of 0.77, it seems clear that the consistent application of the target interest coverage ratio of 1.35 would cause the debt ratio to decline faster and settle at a level even further below its target range. From this, it appears that the target interest coverage ratio of 1.35 is incompatible with the target debt ratio range of 0.80 to 0.82. If the letter is accepted, then a lower target for the interest coverage ratio seems to be needed for compatibility.

Board Counsel considered that the state of the economy should be considered in the determination of an appropriate level of net income. He submitted that net income should be set to reflect stated Government policy: to reduce costs; to discourage indexing to inflation; and to recognize the effects of recession. He recommended adjusting the interest coverage ratio to the state of the economy so that Ontario Hydro would move more rapidly towards its debt ratio target in good times and less rapidly or not at all in hard times. He suggested an interest coverage of 1.25 in 1983 which would reduce net income by $50 million.

Hydro countered that the difficult economic climate makes maintenance of financial soundness more important than ever in view of the high proportion of public debt attributed to Hydro. Further, it pointed out that the reference letter gives no indication that the Government wants Hydro to use its net income policy to improve the state of the economy.

The Board is sympathetic to its Counsel's contention that the state of the economy should be taken into account in setting the level of Hydro's net income. Whereas at present Ontario Hydro's financial status, as indicated by the level and trend of its debt ratio, is such that Provincial bonds continue to be accorded top credit rating by the financial community; maintenance of that level of debt ratio during a recession, in the Board's opinion, would likely be taken by the financial community to constitute fully acceptable financial performance in contrast to general deterioration elsewhere. It would, of course, have been helpful to have had confirmation to this effect directly from key members of the financial community. Thus, the Board is recommending that their opinion be solicited and factored into shaping the policy for net income determination.

The interest coverage ratio required to maintain Hydro's debt/equity ratio the same in 1983 as in 1982 appears to be 1.24 and corresponds to a $70 million reduction in net income from that proposed. The Board therefore recommends that net income be reduced by at least $70 million.

To maintain the existing debt ratio on an ongoing basis, the consistent application of an even lower interest coverage ratio is indicated by Exhibit 68.47.

AMPCO noted that Hydro calculated its interest coverage ratio based on gross interest and submitted that current users should not be obliged to pay for adequate coverage of interest being capitalized on facilities to be used by Hydro's future customers. AMPCO recommended that net income be set to provide adequate coverage of net (non capitalized) interest rather than gross interest.

The Board is of the opinion that the financial community would fail to make the distinction between gross and net interest and, in any event, might interpret adequate coverage of net interest only as inadequate interest coverage.

Before making a recommendation in respect to net income, it is perhaps instructive to look at the cumulative consequences of the application of Ontario Hydro's policy for the determination of net income as set forth in the Table on the following page.

Table 8

ANNUAL COMPARISON OF EQUITY

	1981		1982		1983	
	$M	%*	$M	%*	$M	%*
Equity accumulated through debt retirement appropriations	1,804	10.1	1,970	9.5	2,153	8.9
Reserve for stabilization of rates and contingencies	789	4.4	1,009	4.8	1,384	5.7
Contributions from the Province of Ontario as assistance for rural construction	127	0.7	127	0.6	127	0.5
Total Equity	2,720	15.2	3,106	14.9	3,664	15.1
Total Assets	17,929	100.0	20,819	100.0	24,191	100.0

Source: Abstracted from Exhibit 5, Table 7A2.
*Percentage of total assets.

The equity to asset ratio is holding fairly steady around 15 percent, with a declining share of about 10 percent attributable to the statutory provision for debt retirement and an increasing share of some 5 percent allocated to the provision for contingencies and rate stabilization.

The equity/asset ratio is, of course, the complement to the debt ratio. The debt ratio derived in this manner is about 0.85 -- somewhat higher than Ontario Hydro's derivation because its definition of debt excludes some non equity items, such as accounts payable.

It is conceivable that due to the effects of inflation, equity represented by the accumulated provision of debt retirement could be much less than originally intended by the statutory stipulation. Consideration of the revision of that statutory provision is perhaps indicated as part of the review of the policy for net income determination.

In respect of the reserve for contingencies and rate stabilization, it is arguable that on a self insurance basis, as ONGA suggested, it could justifiably be greater in light of Hydro's experience with unforeseen expenses for facility alterations or highly improbable high cost incidents. However, its adequacy in this respect should be considered in the review of the policy for net income determination.

In H.R.10, the Board expressed a concern:

> "... that what is ostensibly a provision for the future cost of IFM and decommissioning charges really has the net effect in the long run of increased funding by non debt input akin to net income. Nevertheless, the Board concurs with Ontario Hydro that for the present it is appropriate to use the funds generated by the IFM charges for the general purposes of the Corporation rather than to establish a funded reserve. This practice is in accordance with that used by the majority of the utilities surveyed in the U.S. and seems reasonable."

It now appears to the Board that the manner of accounting for such funds could be construed to affect the financial ratios employed to test financial soundness. Thus, there is a need to define clearly such ratios and their accounting background to ensure that these are not ambiguous.

AMPCO, noting Hydro's "innovative" definitions, recommended that Ontario Hydro not only adopt definitions common to the regulatory process but, in future, submit full and complete information with respect to return on rate base and return on equity so that the Board would be in a position to thoroughly and completely evaluate Hydro's net income requirement. There is much merit in such an approach -- which was suggested earlier by Task Force Hydro -- and the Board commends it for favourable consideration. The data provided with respect to rate of return did not include a comparative analysis and was not tested in this proceeding, so it could not be utilized in the determination of a reasonable level of net income for 1983.

In this respect, it is interesting to note that the accumulated provisions for nuclear decommissioning and fuel channel removal are considered part of depreciation; yet they are shown separately on the balance sheet from depreciation and bear an imputed interest as do the other provision accounts of a sinking fund nature.

Hydro suggested in evidence that the provision accounts can be taken to be debt only if invested in Hydro facilities. The Board considers that these amounts can be considered more like equity. The Board understands that it is largely a matter of accounting convention; yet the way in which the accounts are shown affects the ratios derived from them, which in turn, affect the level of net income.

There is need therefore, in the Board's view, not only to adopt but to apply consistently accounting definitions common to the regulatory process and to define them explicitly in order that they be unequivocal.

It should be noted that the whole thrust of the existing policy for net income determination is to ensure financial soundness that will maintain top credit rating for Ontario Hydro and the Provincial Government. In that respect, the Board believes that the question of how to operate Hydro for the benefit of Ontario transcends financial soundness and requires consideration of the optimum balance between current and future operations in order to minimize rates on an ongoing basis. That aspect has not been adequately addressed and, in the Board's view, merits consideration in any review of the policy for determination of net income. Such optimum could conceivably result in a lower debt/equity ratio and a higher interest coverage ratio than is deemed to be required for financial soundess.

Whether the target ratios should be continued and whether they should be higher or lower than now, seems to be a matter for subjective judgment in the absence of definitive studies to add objective guidance. Since this matter is being studied by a special government committee, the Board is restricting its determination to the level of net income to recommend for 1983 only.

All of the foregoing considerations should, in our opinion, be taken into account in shaping the ongoing policy for net income determination. The Board cautions against merely updating and confirming the targets without due consideration of all aspects of the situation.

Given the depressed state of the economy, the single overriding consideration in the determination of adequate net income in 1983 is in the Board's opinion, that real rates must not increase and that circumstances are such that Ontario Hydro must be in the vanguard of those contributing to reduction of inflation. In order that real rates should not increase, a rate increase of not more than and preferably less than the rate of inflation targeted by the Government for 1983 is desirable. To the extent that Hydro is unable to reduce its expenditures to accomplish this objective, it needs to draw upon its reserves and/or lower its net income by more than the $70 million reduction recommended earlier herein.

In all of this, there is a tendency to avoid taking firm positions while awaiting the report of the government committee which is examining this matter. An early report would be of assistance to and appreciated by all concerned and, in the Board's view, might well be released in provisional form as AMPCO suggested.

Late Submission

On August 5, 1982, the Board received, through its Secretary, a letter from D. B. MacCarthy, Vice-President of Ontario Hydro. Attached to that letter was the Monthly Corporate Financial Report, dated May 1982, which indicated that for the five months January through May 1982, Hydro had a net income shortfall of some $75 million, projected to $115 million for the calendar year 1982. Also attached to the letter was the latest update to the Financial Forecast for 1983, which indicated a $4 million downward revision in the forecast of net income as contained in Exhibit 88 filed during the proceedings.

Only AMPCO responded to the Hydro letter and recommended that the Board not consider the late submission of Hydro.

Considering firstly the revision to the 1983 outlook, the Board is not moved to take any particular action in view of a minor revision. Furthermore, the Board has no way of determining, short of re-opening the hearing, whether or not there are further revised estimates for 1983 of a compensating nature.

Secondly, with respect to the anticipated $115 million shortfall in planned net income for 1982, the Board will take no action for the following reasons. Short of re-opening the hearing, the Board has no opportunity to test the data. In the event that the hearing was re-opened, other submissions from other participants would have to be received and the time constraints would not accommodate the injection of voluminous new data at this point in time. Furthermore, it is not at all clear how the accumulated $75 million shortfall from the plan over a five month period, has been extrapolated into a calendar year shortfall of $115 million. The current economic environment is admittedly volatile and circumstances may change sufficiently in the remaining seven months to enable some recovery of the currently expected shortfall. Also there may be other items of which the Board is not aware that are accruing to Hydro's advantage.

It should also be pointed out that a shortfall in net revenue below that contemplated for the current year would not be catastrophic, given the economic climate. Based on the data before it, the Board is reluctant to make any upward revision to the 1983 revenue requirement as an offset to an expected shortfall in 1982.

In the final analysis, it is incumbent upon the Ontario Hydro Board of Directors to consider the most recent and current developments when, at a much later date and with more complete data, it is making its final determination as to the appropriate rate level.

In summary, the Board feels obliged to report upon the letter of August 3, 1982, but is taking no action.

COST ANALYSIS AND COST ALLOCATION

Introduction

The remainder of this report is dedicated entirely to an assessment of the reasonableness of the rate proposals of Hydro which are to become effective on January 1, 1983. In arriving at conclusions with respect to these rate proposals, the Board has been greatly assisted by parameters already established during the protracted hearings into the principles of electricity costing and pricing, reported in its H.R.5 report to the Minister, dated December 20, 1979.

With respect to the development of appropriate rates in this proceeding, the Minister directed in his letter of reference that:

> "The principles of electricity costing and pricing were debated extensively, during your Board's hearings on the Principles of Electricity Costing and Pricing for Ontario Hydro. As Hydro's proposal results from that hearing and subsequent report, the principles examined at that time should not require re-examination."

The Board made sixteen specific recommendations with respect to the appropriate principles to be adopted in the development and implementation of a new rate philosophy. The recommendations specific to rates were as follows:

- o Rates should be fair -- broadly defined as the equal treatment of equals based on the cost causality.

- Rates should encourage engineering efficiency, efficient allocation and use of resources in producing and distributing electrical energy.
- Rate structures should be publicly acceptable and comprehensible, should provide rate stability, and should be feasible in application.
- The concept of time-differentiated rates should be introduced at both the bulk power and retail levels.
- Marginal cost based rates should be rejected.
- Ontario Hydro should continue its pricing method of using accounting costs, adjusted to a future test year, for rate design purposes.
- Load management rates should be considered as a load management technique.
- Rates not based on costs of supplying power should be rejected by Ontario Hydro and the municipal utilities.
- A single customer class should be adopted at the bulk power level consisting of the municipal utilities, the present direct industrial customers of Ontario Hydro and the rural retail system as one customer.
- The time interval used to determine demand should be extended to 30 minutes.

- Electric steel furnace customers of Ontario Hydro should be assessed the same rate applicable to all bulk power customers.
- Time-differentiated accounting cost based rates should be implemented at the end user level as they become feasible.

These then are the objectives of rate design which Hydro should have attempted to achieve in this particular proceeding or otherwise have provided convincing argument as to the impracticability of such principles. In its submission, Hydro took the initial steps to incorporate the recommended principles in its rate proposals. However, there were some exceptions and these will be discussed in detail in the following sections of this report.

Fundamental to the development of rates is a cost of service analysis, cost allocation, and cost differentiation by rating periods. The balance of this report proceeds in that order.

Cost of Service

In respect of the cost of service and cost allocation process, there was obviously considerable divergence insofar as the expectations of the various parties were concerned. In particular, Board Counsel expressed frustration and was perplexed by what he considered to be a dearth of detail as to the costing procedures employed by Hydro. While there were others who expressed disagreement as to certain principles, only Board Counsel expressed dissatisfaction with the quality of the cost allocation evidence.

Board Counsel submitted that:

> "...Ontario Hydro's main rate submission was deficient in that it did not provide details of the proposed method of cost allocation which would enable one to track the cost from beginning to end. No cost allocation study or anything like it was prefiled with the Board. The Board was simply given a narrative description of the process which Ontario Hydro followed."

Although Board staff made persistent efforts to obtain more explicit detail as to procedures, and even hard data on the allocation process, they considered their requirements to be less than fulfilled. Even after the submission of voluminous detail on the cost allocation process, and after considerable cross examination, Board Counsel declared in argument that the responses were "simply unusable".

Dr. Melody, called by Board Counsel, declared that the Hydro cost analysis does not allow the tracking of costs through the entire process. Mr. Kidd, witness for AMPCO, experienced similar difficulties in his attempt to track costs.

Under cross examination, Mr. Ferns, a witness for OFA declared that the Hydro evidence did not enable him to ascertain the fairness with which costs could be assessed against his client. OFA's counsel, Mr. Jarvalt, addressed the subject of cost allocation in his argument, saying:

> "It would have been fruitless for other intervenors to attempt to analyze and test the accuracy of the evidence presented, given the time constraints of the hearing."

During cross examination on the adequacy and clarity of interrogatory responses to cost allocation matters, Mr. Osler, a Hydro witness, said:

> "I appreciate that the information may not be all that easy to follow because we have never tried, previously, at least in my knowledge, to package this information in a form that is understandable externally, and it is generally used for internal audiences who are specialists in the area."

The Board considers that the cost allocation process employed by Hydro gives the impression of excessive complexity which has been further complicated by what, on the surface, appear to be somewhat subjective modifiers. On the other hand, it is the Board's opinion that these modifications were sufficiently supported and satisfactorily explained as the hearing progressed.

The wide divergence in views as to the adequacy of cost allocation detail indicates that there are considerable conceptual differences as to the regulatory function of the Board with respect to Hydro. The Board regards its regulatory role vis a vis the natural gas distributing companies to be quite different than its responsibility with respect to Hydro.

Regarding the gas companies, it is incumbent upon the Board in fulfilling its regulatory obligations to assess the reasonableness of the capital program; the OM&A budget; the sharing of all costs between retail customers in terms of rates; and then to prescribe a reasonable return to equity holders and issue orders intended to give effect to its decisions. The Board's role with respect to Hydro is to assess the adequacy of the proposed revenue requirement; to assess the appropriateness of policies and principles employed in distributing all costs among its customers at the bulk power level; and to assess the reasonableness of rates proposed to realize the revenue requirement and then to report its recommendations and opinions to the Minister.

It should also be noted that the Board is constrained in several respects: the system expansion program is excluded from consideration; retail rates are excluded; net income level has sometimes been excluded and the periodic severe time constraints imposed upon the proceedings occasionally dictate the placement of emphasis or priorities upon the various issues under review.

Despite his criticism of Hydro's presentation, Mr. Rogers seemed to compromise somewhat when he said in argument:

> "Conceptually, the Ontario Hydro process is simple enough. One starts with the segregation of costs between common and non

> common elements. Common costs are then classified between those which are capacity and energy related. A separate series of methods is then used to assign capacity and energy cost to previously defined 'rating' periods -- seasonal and diurnal. Finally, time-differentiated capacity and energy costs are allocated to customer classes."

He pointed out, however, that a conceptual understanding was difficult because of the volume of explanatory detail and numerous documents filed at various time during the proceedings. In any event, Mr. Rogers conceded near the end of his remarks about the quality of Hydro's cost allocation evidence that:

> "It is, however, important to note that notwithstanding its blemishes, Dr. Melody finds that the results of Hydro's efforts are a step in the right direction and that they should be accepted for 1983 even though they are largely unsupported by proper cost analysis."

The Board regards the position taken by Board Counsel to represent tacit acceptance of the procedures for purposes of this hearing.

The Board is satisfied that, for the most part, Hydro's explanations with respect to cost allocation are satisfactory for the purposes of these proceedings. However, it should be possible for Hydro to prepare a more coherent presentation, and this will be expected in future submissions.

The Board has already recommended reductions in the revenue requirement of $161.6 million as summarized in this report at page 180. The task now is to determine whether the allocation of costs (revenue requirement) to the various customer classes is just and reasonable.

Cost Allocation

It became obvious during these proceedings that Hydro is in many respects atypical and may therefore not lend itself readily to conventional cost allocation procedures. For example, Hydro is primarily a bulk supplier of energy; it is obliged to render service at cost; it is not profit motivated; its borrowings are guaranteed by the Province. It has considerable excess capacity and may have for the next decade. It has only two customer classes and there is a great disparity in the size of customers within each class. The conventional rate base determination and return thereon has not been used. For all of these reasons, the Board finds it difficult to confine Hydro to conventional costing methodologies, which may be entirely appropriate for the regulation of investor owned utilities.

Board Counsel and AMPCO argued in favour of the conventional cost allocation process which would involve basically four steps: the functionalization of all assets and costs as to whether they are generation, transmission, or distribution related; the classification of all such costs as to whether they are fixed or variable; the assignment of any costs that are of a general nature and cannot be clearly classified; and finally, the allocation of these costs to various classes of service.

AMPCO Interrogatory A-6.2 was a request for a table functionalizing and classifying Hydro's 1983 costs in accordance with the National Association of Regulatory Utility Commissioners' ("NARUC") cost allocation manual. Hydro attempted to allocate costs in accordance with those guidelines. As a result, AMPCO recommended that, "In general, fixed costs be classified to demand and variable costs be classified to energy, but subject to certain adjustments as reflected in Ontario Hydro's response to AMPCO Interrogatory A-6.2".

Hydro had taken the position that it abides generally by the NARUC manual insofar as functionalization is concerned, but argued that there is latitude as to the classification of costs. The consequences of the interpretation placed on the "variable" component of cost is that it can and should include all energy related costs and that the fixed component should include only those costs that are related to peaking capacity. This conceptual approach has resulted in a significant change in the demand/energy split which is dealt with in detail in subsequent sections of this report.

Treatment of Non Common Costs

The vast majority of capital plant facilities and services provided by Hydro accrue to the benefit of all customers. These are identified as common costs and are discussed elsewhere herein. They constitute about 92 percent of the net revenue requirement. There are, however, certain facilities that are dedicated to the exclusive use of a certain customer or group of customers and/or are intended to provide a service beyond that which is available to all other customers. These are identified as non common costs. They include rural distribution costs and constitute the remaining 8 percent of the net revenue requirement.

In order to improve the tracking of costs, Hydro made a number of proposals with respect to the boundary between common and non common costs and also had several proposals with respect to their treatment.

As in previous years, the revenue requirement would be split between common, non common and rural distribution costs. Hydro's proposal contained some changes designed to achieve a better split of charges between the common and non common facilities. It would allocate a greater share of costs to non common functions than does the existing system.

The proposed allocation incorporated numerous changes from the existing system in both the functionalization process and in the allocation of non common functional costs to distributors and customer classes within the Power District. These changes were based on Hydro's cost tracking objective.

The functional boundaries remain relatively unchanged from the existing system, but a few refinements have been proposed in the common/non common split. In particular, low voltage lines specifically serving the Power District would be treated as non common costs specifically charged to the Power District. This proposal would treat all distributors equally and represents an extension of existing practice which identifies low voltage lines lying within a municipal utility's boundaries and serving only that utility specifically.

In addition, all costs of metering bulk power customers previously considered to be non common would now be allocated as a common cost. This would include costs from the non common meters and transformation functions. Hydro considers these costs to be common and therefore appropriately pooled, because they are associated with an activity that is performed for all customers and also because the number of customer metering points may not be totally within the customer's control but is determined by the supply arrangement instead.

There was also a minor transfer of assets proposed between the non common functions. In the existing system, stations transforming from 115 KV to below 10 KV are split between the non common transformation functions on a 45/55 percent basis. The proposed system would accumulate the total costs associated with these stations in the non common transformation function. The costs of stations transforming from below 50 KV to below 10 KV which were previously pooled, would now be assigned specifically.

Hydro plans a study of transformation and other non common assets to examine the feasibility and desirability of assigning costs on an individual facility basis to users of stations in this function. Recommendations from this study are planned to be included in the 1985 rate proposal.

The proposed system would incorporate a significant change in the allocation of general administrative overheads. In the existing system, these overheads are allocated between the bulk and rural systems. The total bulk portion of the overhead costs is then considered entirely a common cost and the non common functions bear none of these costs. The proposed system would recognize that corporate level overheads are incurred essentially to support all direct work activities; and would therefore assign a share of these costs to all functions, including non common, consistent with the cost tracking objective.

The proposed system would also include significant changes in the allocation of net income and refinements in the allocation of interest expense. In the existing system, interest and net income are allocated separately. Interest expense (net of capitalized interest) is split between the bulk and rural systems. The bulk component is then allocated only over common and non common fixed assets in service. Net income is also split between the bulk and rural systems; but the entire bulk component is again considered entirely a common cost and the non common functions bear none of these costs.

The proposed system would recognize that all fixed assets, including non common assets and those under construction, are financed by a combination of both debt and equity and should therefore contribute to the total of financing charges. Since specific sources of funds cannot be identified with particular facilities, it assumes that all fixed assets contribute equally to the need for total financing charges (interest and net income). Therefore, a uniform corporate cost rate of capital would be used for all fixed assets. The application of this cost rate of capital to the net book value of fixed assets in the common, non common and rural asset groups would provide a reasonable basis for allocating interest and net income. It would also appropriately assign a share of net income cost to non common functions for the first time and would recognize the impact of equity contributions in the allocation of interest to the three asset groups.

In order to obtain a perspective of the cost consequences of these proposed changes, the Board compiled the evidence in Table 9.

Table 9

PROPOSED COST ALLOCATION
$ Millions

Customers			Existing System		Proposed System		Difference
Municipals	Rurassist*		27		39		12
	Other		2,276		2,233		(43)
	Common		2,303		2,272		(31)
	Non Common		67		85		18
	Total		2,370		2,357		(13)
Directs	Rurassist		7		10		3
	Other		550		550		0
	Common		557		560		3
	Non Common		(5)		(5)		0
	Total		552		555		3
Rurals	Rurassist		6		8		2
	Other		453		477		24
	Common		459		485		26
	Non Common		22		42		20
	Distribution	255		235		(20)	
	Rurassist	(40)		(57)		(17)	
	Net	215	215	178	178	(37)	(37)
	Total		696		705		9
Total	Rurassist		40		57		17
	Other		3,279		3,260		(19)
	Common		3,319		3,317		(2)
	Non Common		84		122		38
	Rural Distr'n Net		215		178		(37)
	Total		3,618		3,617		(1)**

*Rurassist - Rural Residential Rate Assistance
**Error in rounding, Etcetera

Compiled from:
Exhibit 5, Tables 6C3, 6C4;
Exhibit 6, Tables S-11, S-13, S-19;
Exhibit 7, Tables 9.6, 9.8, 9.9, 9.13;
Exhibit 68.72;
Exhibit 68.83.

As can be seen, the net effect of the cost allocation proposal would be to shift some $12 million from the municipal utilities, with $9 million to the rural customers and $3 million to the direct industrials.

Despite the reduction of some $12 million in costs allocated to the municipal utilities, its reallocation amongst them would not be uniform. Indeed, some of the municipalities would have increased costs while others would have decreased costs, depending largely upon the changes needed to reallocate costs more fairly amongst them. There was considerable concern by some northern municipalities that they would be disadvantaged by the impact of seasonal rates. However, it is apparent from Table 10 that almost of the change is due to the shift in allocation of non common costs rather than to seasonality of rates.

Table 10

PROPOSED COST ALLOCATION TO MUNICIPAL DISTRIBUTORS (1983)

	Common (000's)	Non Common (000's)	Total (000's)
North Bay			
- Proposed Method	15,344	598	15,942
- Existing Method	15,335	464	15,799
Increase (Decrease)	9	134	143
Sudbury			
- Proposed Method	24,635	950	25,585
- Existing Method	24,549	738	25,287
Increase (Decrease)	86	212	298
Thunder Bay			
- Proposed Method	37,182	1,466	38,648
- Existing Method	37,373	1,138	38,511
Increase (Decrease)	(191)	328	137
Total Northern Municipal Distributors			
- Proposed Method	102,110	3,958	106,068
- Existing Method	102,336	3,129	105,465
Increase (Decrease)	(226)	829	603
Total Southern Municipal Distributors			
- Proposed Method	2,170,171	80,910	2,251,081
- Existing Method	2,200,915	63,620	2,264,535
Increase (Decrease)	(30,744)	17,290	(13,454)
Total All Municipal Distributors			
- Proposed Method	2,272,281	84,868	2,357,149
- Existing Method	2,303,251	66,749	2,370,000
Increase (Decrease)	(30,970)	18,119	(12,851)

Source: Exhibit 68.88

As the net impact of the changes in cost allocation to the customer classes is relatively small and as these represent more accurate identification of costs and their causes and assignment accordingly, the Board recommends acceptance of the proposed method of cost allocation.

There were a number of specific issues raised in respect of non common assets and their costs.

OFA contended that Hydro for the first time proposed to allocate specific low voltage lines to the rural retail system. As Hydro had confirmed that there had been no change in these facilities or their usage, OFA submitted that the Board should reject Hydro's proposal and recommend the "cost allocation status quo" until Hydro demonstrates scientifically that the proposed change is a better tracking of costs.

Hydro countered that it first proposed the allocation of the costs of specific low voltage lines directly to their users in the H.R.5 ECAPS hearing in 1979; that the change in cost assignment was proposed solely to achieve the cost tracking objectives recommended by the Board in H.R.5; and that such change is not only long overdue, but follows this objective directly, as the lines involved serve only the Power District and are strictly within its territory. Furthermore, Hydro noted that OFA's witness accepted the logic that facilities used only by the rural retail system should be charged to the rural retail system.

In the Board's view, a change in facilities or their usage is not a prerequisite to realigning the allocation of their costs to match their cause. On the understanding that in this instance the facilities involved serve only the rural retail system, the Board recommends acceptance of the reallocation of their costs to the rural retail system as Hydro proposed.

Hydro proposed to allocate the costs of 500 KV transmission lines as common to all customers, as in the past. OFA submitted that 500 KV lines are built primarily to meet urban demand requirements and that although some minor cost savings may be distributed to the system as a whole, large scale facilities such as 500 KV transmission lines should be allocated on a non common basis. OFA also submitted that if the allocation of the cost of 500 KV lines as common costs was justified on a cost causality basis, then such allocation should be in proportion to the increase in demand which caused the construction of these lines.

Hydro replied that all customers benefit from 500 KV lines, which make low cost nuclear energy widely available efficiently. Moreover, as the farm group, for instance, represents a relatively small percentage of electricity use in the province, all but a relatively small portion of the cost of the high voltage lines will indeed be allocated to others as OFA contended. Hydro submitted that the costs of 500 KV lines should be treated as common in order that the resulting allocation would meet the fairness standard.

The Board notes that without the high efficiency transmission of high voltage lines, the benefits of low cost nuclear and hydraulic generation of electricity could not be made available to Hydro's customers throughout the province. The Board is satisfied that the treatment of such lines as common facilities and their costs as common costs is just and reasonable, and recommends that it should be continued.

Board Counsel recommended that an appropriate discount for customers taking power at 230 KV should be determined for inclusion in 1984 rates.

Hydro said that it has already included this as an issue to be examined in the study of transformation and non common assets. It took the position, however, that because of the interrelated nature of many of the issues being examined, no proposals should be made to the OEB until the entire study is completed.

Board Counsel also recommended this common/non common transformation study be completed in time for the review of 1984 rates. Hydro submitted in view of the scope of the study and the customer review process entailed, that this recommendation be rejected as its timing would seriously jeopardize the quality and likely acceptance of the recommendations of the review. Hydro plans to incorporate the conclusions from the review in its proposal for 1985 rates.

In view of the length of time that Hydro has had to shape its cost allocation proposal, the Board has difficulty understanding why the transformation and non common assets study has yet to be done; but reluctantly recommends acceptance of Hydro's target for its completion in time for its results to be incorporated in its proposal for 1985 rates. The Board, however, can see no reason why a discount for service at 230 KV cannot be established separately and in time for inclusion in the 1984 rate proposal; and recommends that it should be included even if it requires modification subsequently.

OMEA recommended that the Board should reject the use of a uniform gross rate of return to allocate net income to common, non common and rural distribution assets because, in its submission, non common distribution assets are less risky than generation assets and therefore merit a lower rate of return.

OMEA, noted that Hydro did not intend to apply different rates of return to different assets because of lack of a practical basis for determining such rates of return; and submitted that implementation of the net income proposal should be deferred until an appropriate return on non common assets can be established.

Hydro noted that OMEA had accepted the essence of its proposal. Hydro agreed that some fine tuning of the allocation of net income to different asset groups may be desirable and would be reviewed, but opposed deferring implementation of its proposal on the grounds that non common plant should be allocated a share of net income in order to improve the cost tracking of rates in 1983.

The Board accepts Hydro's position that it would be fairer to proceed with the implementation of the proposal to allocate net income to asset groups at a uniform rate in 1983. Later such rate could be differentiated by asset groups if merited, rather than deferring this allocation beyond 1983.

OMEA also recommended that the Board should recommend that Hydro's allocation process continue to allow the municipal utility system to subsidize municipal utilities' that are unfairly burdened by specific facilities charges associated with changes in common/non common boundaries.

Hydro considered OMEA's recommendation to be based on a misinterpretation of Hydro's proposal to provide impact relief to five municipal utilities whose 1983 rate increase, resulting from changes in the costing and pricing system, is more than 5 percent. Hydro urged the Board to reject OMEA's recommendation noting that:

- Such impact relief is not being subsidized by the municipal utility system but will come out of net income in an amount of about $20,000.
- The high impact on these five municipalities is mainly the result of the policy change which will bill users directly for the costs of

transformation from below 50 KV to below 10 KV and are not associated with changes in common/non common boundaries.

- Impact relief is not limited to situations involving common/non common boundary changes, as implied in the recommendation, but extends wherever Hydro considers the impact differential to be unusually large.
- The unusually high impact differentials for these five municipalities may be moderated by a review of the cost allocation in the distribution stations involved.

The Board considers that Hydro's response provides OMEA with assurance that impact relief will continue; but notes that its cost will be provided from net income rather than from subsidization by other municipal utilities.

OFA submitted that a clearer picture of the size of the rural residential assistance would be to charge the cost of such assistance to all customers except rural residential customers, rather than to charge it as a common cost.

Ontario Hydro disagreed with this and asked the Board to reject OFA's recommendation. The rural retail assistance is a social program of the Legislature administered by Hydro. It requires that the forecast differential between the rural residential customers and municipal residential customers, at a particular consumption level, be reduced to "15 percent on a yearly basis". Hydro contended that how that differential is to be recovered is within its discretion. It is Ontario Hydro's judgment that it is appropriate to recover the cost of a social program from all customers, including those who benefit therefrom, in order to maintain the integrity of Hydro's costing and pricing system and administer the Rural Residential Rate Assistance program. Furthermore, Hydro submited that the Board and the people of Ontario can obtain a clear picture of the size of the Rural Residential Rate Assistance because it is explicitly set out each year in Hydro's rate submission.

Hydro's treatment of the cost of Rural Residential Rate Assistance as a common cost recoverable from all customers, including those being assisted, is, in the Board's view, equitable. The Board recommends its acceptance. There is need, however, for greater clarity in the presentation of this subject.

Common Cost Allocation

The Demand/Energy Split

The present classification of costs into demand or energy components seems to have been derived without the benefit of any definitive formula. In a roughly fashioned process, the exclusively energy costs are identified and all remaining costs are considered to be demand costs. The relationship between capacity and energy costs has been held constant since 1976, pending the results of the electricity costing and pricing review. From the evidence, it is difficult if not impossible for the Board to assess the equity and the accuracy of the demand/energy split as now applied.

AMPCO submitted that under the procedure presently employed in developing a demand/energy split, 53 percent of costs would be demand and 47 percent energy; whereas, if the NARUC approach were used, the ratio of demand to energy would be 62/38.

Hydro submitted that the implementation of a demand related versus an energy related split in costs would result in 37 percent demand and 63 percent energy. Hydro's classification of costs into demand and energy components is based upon a further development of, and a considerable refinement to, certain proposals presented during the ECAPS proceedings.

The Composite Peaking Plant

Ontario Hydro's classification of costs rests heavily upon the proposition that certain power plants, primarily nuclear, were brought on earlier than otherwise needed to achieve savings in energy costs. Notwithstanding the fact that these plants have a high fixed cost, the composite cost (assuming a high plant factor) of producing electricity would be lower than any other option. It was submitted that although such plants contribute to satisfying peak demands, their construction was justified by the low cost of producing electrical energy and that consequently, their total cost is energy related and should therefore be so classified.

In developing a demand cost component, Hydro submitted that "capacity related costs are those costs which are incurred primarily to provide the capacity required by Ontario Hydro's customers". These peaking plants of which there are 13 (six thermal and seven hydraulic) were selected on the basis of certain specifications. Thermal generating plants were designated as "peakers" if their average winter peak period output exceeds their average winter off peak period output by more than 5 percent. Hydraulic stations were designated as peaking plants if their annual capacity factor is less than 30 percent. The designation of such plants as peaking capacity provides the basis of a composite peaking plant method (CPP). The unit cost of capacity which Hydro provided is the weighted average of the unit generating plant costs based on the relative peaking performance of each.

The proposal results in $590.2 million of generating plant costs being classified as energy related and consequently classified as an energy cost component, leaving $688.2 million of generating plant costs being classified as capacity. The application of the CPP concept therefore would effectively transfer some 20 percent of the total generation and grid costs from the capacity (demand) to the energy component.

AMPCO objected to the CPP concept and contended that Hydro had failed completely to prove that its proposal serves the objectives of fairness and engineering efficiency. It urged the Board to reject the concept and to return to the fixed variable method of classifying costs.

Mr. Rogers also had objections. He would have preferred a conventional fixed/variable analysis which might be used as a tool to enhance the reviewers' capacity to understand what Ontario Hydro was attempting to do. He also observed that such a methodology has never been approved by any authority nor is it used by any other utility.

UDI was critical of the proposal and regarded it as inequitable. Its argument in this respect seems to rest heavily on the assumption that the retail rates will be a direct reflection of bulk power rates. The Board considers this to be an unwarranted assumption.

OMEA supported the Hydro proposal and argued that there were compelling reasons for placing more emphasis on energy charges and reducing the emphasis on demand costs. Mr. Schwartz argued that a greater emphasis on energy would more closely reflect the reasons costs were incurred; that time-of-use rates ("TOU") lessen the need for a demand charge; and that it is inequitable to burden peak users with the cost of excess capacity.

He also argued that although it is appropriate to recover a higher proportion of costs through the energy charge, it would be premature and may always be wrong to eliminate the demand charge completely. He submitted that, in any event, a return to the old fixed/variable approach is clearly inappropriate for the Ontario Hydro system. Mr Schwartz not only accepted the methodology but suggested that the argument had raged too long already; and that the 39/61 demand energy split should be accepted and remain fixed for the next five years.

In arriving at its conclusion with respect to the demand/energy split and the CPP concept, the Board must begin with the realization that it is witnessing an evolutionary process. The ultimate goal of the process is to put into place seasonally and diurnally time-differentiated rates that track costs well and, at the same time during this evolutionary process, are reasonably stable. Furthermore, at this stage of the transition from the more conventional pricing methods to time-of-use rates, the Board's primary concern is the establishment of policies and principles that will achieve the goals of more precise cost tracking and improved efficiency.

The Board does not agree with AMPCO that the proposals put forth by Hydro do not serve the objectives of fairness and efficiency. The fixed variable approach to rate setting which AMPCO recommended be continued is, in the opinion of the Board, a method of cost allocation that does not lend itself readily to time-differentiation of rates.

The Board considers the CPP concept to be well founded and logical in the development of the demand component of cost. The analysis of the 1983 data leads to a capacity/energy split of 37/63 which, when 1983 and 1984 are effectively averaged in the interests of rate stability, the ratio becomes 39/61.

The Board is satisfied that in order to eventually assign all costs to several pricing periods, the demand related costs must be expressed in terms of kilowatt hours ("KW.h") and that the methodology proposed by Hydro is conceptually sound and moves appropriately in that direction.

The Board recommends acceptance of the capacity/ energy split developed through application of the CPP concept.

The Board has some empathy for Board Counsel and his objections regarding the lack of a definitive and comprehensible description of the costing procedures. Other major participants have had the benefit of discussions and negotiations over a period of some two years. Exclusion from such discussions may have placed Board staff and Counsel at some disadvantage.

It seems reasonable to assume that subsequent annual reviews of Hydro's rate proposals will lead to a more thorough understanding of the procedures employed. It is also conceivable that the addition of generation in the future will introduce perturbations insofar as the composition of the CPP concept is concerned. Furthermore, there may be at any time in the future, logical refinements proposed which should not be precluded. For these reasons, the Board rejects the proposal to freeze the demand/energy ratio for a five year period. However, in the interest of rate stability, the Board would recommend that any change in either the demand or the energy component be subjectively limited to 1 percentage point per annum.

Grid Costs

Hydro submitted that the bulk power transmission and transformation costs, excluding property taxes and OM&A costs, are primarily capacity related, but that a small portion is energy related. The sizing of grid facilities is dictated primarily by capacity requirements; however, additional investment may be made, when cost effective, to reduce the energy losses of transformation and transmission. This additional investment is about 0.7 percent of total grid costs; and Hydro proposed to classify $2.9 million as energy related and the balance of the grid costs of $399.7 million as capacity related. This proposed treatment of grid costs, together with the previously discussed treatment of energy related costs, results in the demand/energy split of 37/63 also previously mentioned.

Basically, the classification of grid costs is consistent with the CPP concept which classifies cost savings as energy related. There was no objection expressed to the proposal, and the Board recommends that the grid cost classification be accepted.

Excess Capacity and General Costs

Hydro submitted that after providing for a 25 percent reserve margin over the 1983 firm load forecast of 17,777 MW, there would be 3,064 MW of excess capacity. It was proposed that this excess capacity be valued at the 1983 average unit cost of all generating plants and then classified as demand or energy related in accordance with the derived demand/energy ratio of 37/63.

The annual cost of carrying the excess capacity based upon the system average technique proposed by Hydro was $176.2 million.

Hydro also incurs costs through the rendering of various services that are available to all bulk power customers. These are of a general nature and are identified as "general costs". It was proposed that these costs be classified as capacity or energy in the ratio established by the classification of generation and grid system costs. Hydro argued that the proposed classification of general costs and excess capacity cost will not distort the capacity/energy split and will stabilize the ratio. It supported the proposal by suggesting that "the impact of these costs is neutral", in that all customers bear this cost proportionately and thus maintain the efficiency and cost tracking criteria of rate development.

The general costs amount to $119.1 million and when combined with the aforementioned excess capacity costs, total $295.3 million.

AMPCO argued that the Hearn, Lennox and Keith generating stations should provide the basis for the determination of the costs of excess capacity as these three plants have been identified as being in excess to domestic requirements for 1983. It also argued that such a procedure would be consistent with an accounting cost policy. AMPCO submitted that if it is necessary to determine a costing structure for excess capacity, then the calculation should be based on the three plants that are in fact mothballed or dedicated to export markets.

Board Counsel submitted that Hydro's proposed treatment of general and excess capacity costs "may have violated" the fairness criterion. His argument seems to suggest that some customers are more responsible for cost causality than others and that therefore more responsibility for excess capacity and costs of a general nature should be allocated directly.

OMEA in argument not only firmly supported the capacity/energy ratio as proposed by Hydro, but urged that it be fixed in place for the next five years. OMEA tacitly accepted the proposed treatment of the general and excess capacity costs.

Hydro, in further support of its proposal with respect to the excess capacity costs, submitted that its proposal is inherently more stable than a procedure which would require the identification of plants in excess of current requirements. It submitted that taking plants which have been mothballed or kept in service with the expectation of export sales as the basis for determining excess capacity costs, tends to understate such costs.

The Board finds that no customer or group of customers can be held responsible for the excess capacity and general costs. There is no identifiable cost causality and therefore cost tracking is not an issue. In the opinion of the Board, the burden of such costs must be shared proportionately by all customers.

The Board is of the opinion that it is not possible, as OMEA suggested to identify plants that should not have been built; and therefore the Board rejects determination of excess capacity costs via that method.

The Board also finds that the mothballing of certain plants is a remedial reaction to an over capacity situation intended to minimize costs in the short run and bears no cost causality relationship. The Board therefore recommends rejection of the AMPCO submission.

Stability of the demand/energy split is considered to be highly desirable; capacity has been added, purportedly for economy of production reasons; and the excess capacity cannot be considered exclusively as a capacity cost. In the opinion of the Board, Hydro has adopted the best of the options, that is: to classify general and excess capacity costs on the same basis as that reflected by the classification of generation and the grid system costs; and furthermore, that each and every plant of the system can be notionally regarded as containing an element of excess capacity and the costs of excess capacity therefore should be based upon the average system costs of all generation capacity. For all of these reasons, the Board accepts the proposed classification of general and excess capacity costs.

Rate Stabilization Features

The functionalization and classification of costs as described in this section have been applied to forecasted 1983 costs. The analysis results in a demand/energy split of 37/63.

Hydro made several proposals which are intended in general to stabilize the ultimate rates. These measures are intended to moderate the initial impact of time-differentiated rates as well as to maintain a degree of stability in rates as a result of changing cost components in the years following implementation.

In respect of the procedure pertaining to the capacity/energy split, Hydro proposed that in order to stabilize the demand/energy split, the common costs (excluding customer administration costs) be classified for each of four consecutive years and that the capacity/energy split so derived be averaged. The four years intended to be used for this purpose are the current year, the rate year and the two following years.

For purposes of this proceeding, Hydro proposed to average the costs for 1983 and 1984 only due to data limitations. The adoption of the proposed procedure would result in a capacity/energy split of 39/61 as opposed to the 37/63 ratio resulting from analysis of 1983 data only.

Except for AMPCO, which disagreed with the entire proposed concept of capacity/energy split, the major participants found that the proposal was a move in the right direction.

The Board agrees that the adoption of the proposed forward averaging technique would tend to stabilize the demand/energy split and finds this procedure acceptable. Furthermore, the Board recommends the acceptance of the 39/61 capacity/energy ratio; and reiterates that the ratio should not be frozen but limited to a drift not exceeding 1 percentage point in any year.

Other measures intended to maintain rate stability are discussed in subsequent sections of this report.

Customer Administration Costs

Certain costs are incurred in providing each of the customer classes with various products and services. Hydro proposed to assign these costs to the customer classes on a basis which reflects the capacity and energy elements assigned to each of the classes. Hydro submitted that this will maintain the capacity/energy split of each customer class arising from the allocation of generation, grid, excess capacity and general costs. It proposed that customer administration costs are to be allocated after all common costs have been time-differentiated and allocated to customer classes.

Mr. Rogers observed that the proposal may have violated the fairness criterion in that costs may not be tracked to the extent feasible and practical.

The Board finds no evidence that customer administration costs vary by size of customer, nor is there any evidence that such costs should fall with equal weight upon each customer. The Board therefore concludes that the proposal is not unreasonable. It is clear that such costs are not necessarily initiated by the customer, but are essential to the enhancement and maintenance of service at reasonable cost. The Board observes that the proposed treatment assumes the continuation of a municipal utility customer class and the Power District as a notional customer. The Power District is further subdivided into direct industrial customers and rural retail customers. With this reservation, the Board accepts the allocation of customer administration costs as proposed by Hydro.

The Rating Periods

Hydro proposed TOU rating periods, designating September through March as the winter period and April through August as the summer period. For pricing purposes, daily peak periods would be the hours 0700 through 2300, Monday through Friday, excluding public holidays. All other hours including weekends and public holidays would be "off peak" for pricing purposes. These daily rating periods would apply to both winter and summer.

In deriving TOU seasonal pricing periods, Hydro relied upon a system incremental cost ("SIC") approach which minimizes cost differences within periods and maximizes cost differences between periods. This approach resulted in a grouping of winter/summer months as indicated above.

Mr. Rogers submitted in argument that the inclusion of September in the winter season was questionable as either the expected unsupplied energy ("EUE") analysis or an analysis of load data would put September in the summer period. He also pointed out that September, in terms of demand, is one of the lowest months; and that September as a summer month would be more readily understood and accepted by the public.

AMPCO also argued in favour of including September in the summer season, resulting in a six month seasonal differential. It also submitted that where cost data and load data give conflicting results, the load data should prevail and as previously observed, load data analysis would classify September as a summer month.

Mr. Schwartz pointed out that although the ECAPS hearing based on load information placed September in the summer period, costs are a more appropriate basis for allocating months seasonally. He recommended that the Hydro proposal of seven winter months and five summer months for pricing purposes be adopted.

Hydro admitted in their argument that a joint use of the EUE and the SIC analysis would indicate that the months of September, October and November could be a third seasonal rating period; furthermore, it admitted that the introduction of a four hour super peak period during the months December through March would considerably improve cost tracking.

The proposed diurnal pricing periods of 0700 to 2300 hours remained as derived during the ECAPS hearing and were not challenged by any participant during these proceedings. This may be a temporary acceptance since it was proposed that diurnal differentiation of energy charges be deferred until 1984.

The Board realizes that a transfer of September to the summer season would result in a very modest increase in both the winter and the summer seasonal rates which would be offset by a decrease during September; and also that this seems to run counter to the stated objective of maximizing cost differences between seasons. However, it must be realized that it is a small deviation which tends to moderate the seasonal differential and consequently moderates the impact of the implementation of the seasonally differentiated rates.

Although it has been argued that the Board has indicated a preference for cost based rates, it should also be pointed out that the Board during H.R.5 was largely influenced by load data insofar as seasonal rating periods were concerned. The Board declared in its H.R.5 report that:

> "We have considered the evidence carefully but cannot conclude from the information before us what the appropriate seasonal ratings periods

> should be. Nevertheless, we agree that in principle a seasonal differential is warranted and should be implemented."

And also:

> "As Ontario Hydro becomes better able to identify periods, assuming a beneficial impact, more periods should be introduced."

The Board does not find the evidence in support of Hydro's proposal for the seasonal split to be convincing. Maintenance during September of plant expected to be heavily loaded during winter and storage of water in September during years of low river flows were arguments put forth in support of Hydro's position. A somewhat self imposed modus operandi by Hydro's system operators should not be an overriding consideration.

The Board is of the opinion that a six month seasonal split, even if it does represent a small deviation from cost tracking, would seem to hold open options of "shoulder" periods or other periods that may become apparent as customer responses become discernable; and to do so as well as or better than the proposals of Hydro.

Although Hydro submitted that its proposed seasonal split was not unfair to northern communities, it was regarded as unfair by certain municipalities. A six month winter pricing period should relieve that anxiety until more convincing evidence is presented.

The Board does not accept that the initial selection of rating periods be kept in place for at least five years as recommended by OMEA. Hydro need not defer indefinitely the implementation of additional pricing periods indicated by customer response; nor should it defer the introduction of pricing differentials which the evidence already available would support.

For all of these reasons, the Board recommends that the winter rating period consist of the months of October through March and the summer rating period consist of the months of April through September. Further, that annual modifications of a fine tuning nature may be introduced in subsequent years beginning with the implementation of fully differentiated diurnal energy charges in 1984.

Customer Classes

Ontario Hydro proposed, for bulk power cost allocation purposes, to retain the same customer classification as in the recent past. This would consist of 327 distributors: 324 municipal distributors; 2 private distributors; and the Power District as a notional distributor serving 102 industrial customers, together with all the rural customers served by Hydro treated notionally as a single customer. However, for purposes of developing rates, Hydro proposed two customer classes -- one of which would be all of the municipal utilities and the other the direct industrial customers. The rural retail customers in the Power District are not within the jurisdiction of this Board.

The Hydro proposal is not in accordance with H.R.5 in which the Board recommended that there be a single customer class made up of the 354 municipal utilities, some 100 industrial customers served directly by Hydro and that the rural retail system be regarded as a single (notional) customer within the same class.

AMPCO was supportive of the customer classification as proposed by Hydro. It pointed out that the direct industrial customers peak randomly and consequently, the inherent diversity of the industrial group must be recognized in rate development. AMPCO declared that:

> "While supporting the retention of the power district for 1983, AMPCO agrees that the present system is not perfect and that there is a need for all concerned to seek a more satisfactory solution."

And also that:

> "AMPCO endorses Ontario Hydro's proposal to review customer classification, and is prepared to participate fully in the process."

Mr. Rogers urged the Board in argument to be consistent in its previous recommendation as there is no fresh evidence to justify doing otherwise. He also drew the Board's attention to Dr. Melody's testimony to the effect that recognition of diversity benefits would no longer be essential when rates are time-differentiated and that eventually, demand charges would not need to be quoted at all but would be expressed in terms of energy charges. The Board is in substantial agreement with this as an evolutionary process.

OMEA submitted that Hydro has provided no new evidence which would justify its proposed customer classes and that therefore, the Board should persist in its single customer class recommendation as set out in H.R.5. Mr. Schwartz quoted extensively from the evidence of that hearing which had led the Board to its conclusion that a single customer class was most appropriate. In addition, he pointed out that the recent legislation providing for a rural residential rate subsidy eliminates the need to provide these customers with additional diversity benefits through the Power District concept. He also submitted that Hydro's apparent concern with equity between large customers served by municipal utilities and large customers served directly by Hydro, is a concern that is better resolved by the Board's previously recommended single customer class than the proposal Hydro put forth. OMEA concluded its argument on this subject by expressing a willingness to participate in further study on the subject but declared at the same time that it will argue later for a one year deferral of implementation of a new rate design.

In the Board's opinion, a single customer class is entirely satisfactory when rates are fully time-differentiated. A single customer class may, in fact, be warranted before that point in time. Hydro admitted in argument that the customer classes proposed is not its final stand on the matter and that it will invite other participants to study the issue.

The Board recommends that a single customer class be adopted only after TOU rates are more thoroughly implemented. The Board is firmly of the opinion that TOU rates themselves will dissolve the question of diversity benefits in due course. The implementation of the diurnal differentiation of energy charges as planned for 1984 and a further rolling in of demand charges with the energy charge (as advocated by Dr. Melody and Mr. Slater, particularly) may well be a point at which a single customer class will suffice. The Board is also of the opinion that a single customer classification at the bulk power level need not be deferred beyond 1985.

The Board therefore recommends acceptance of the customer classes as proposed by Hydro for the purposes of 1983 rate design only.

RATE DESIGN

Assignment to Rating Periods and Customer Classes

Demand Charges

Hydro proposed to employ as a basis for the allocation of system capacity costs the EUE estimates of the System Planning Department. System Planning, in establishing EUE estimates, develops measurements of the risk of being unable to supply energy during various periods throughout the year. With the realization that this may be inconsistent from year to year and therefore may not satisfy the stability criterion of rate making, Hydro proposed several modifications to the basic EUE estimates. It proposed to assume a system without excess capacity -- which it argued is the ultimate target toward which Hydro must strive. It proposed to average the EUE estimates over a five year period including the current year, the rate year and the three years following, thus smoothing out the impact of new capacity additions. It proposed also to average (or half) the initial summer and winter capacity cost allocation with the system average; thus reducing the burden in winter and increasing the burden in summer and thereby moderating the seasonal differential. This, it claimed, should also stabilize the system load pattern, and hence, stabilize the resulting allocation based upon the EUE methodolgy as modified.

The final modification was to assign all capacity charges to peak periods of each season; and thus avoid the perverse customer response to a pricing signal that could result if diurnal demand charges were to be assessed.

OMEA was most critical of the proposal and argued that: it was unstable; it relied upon subjective judgment; it was not verifiable or understandable; it had not been tested by rate designers; and it was not based upon Hydro's existing system. OMEA recommended that the Board reject the proposal in favour of assessing demand charges on the non coincident peak demands of each month.

Board Counsel had a similar but less emphatic criticism of the proposal. He argued that in the interests of comprehensibility, the demand/maintenance method which is a refinement of the "proportional method" should be considered since it received favourable comment from the Board in the H.R.5 report.

Energy Probe submitted that the Board should recommend a downward revision in demand charges and greater emphasis on the energy charges.

AMPCO, after comparing the seasonal allocation of demand charges resulting from the modified BIP method to the Hydro proposed allocation, considered the Hydro proposal to have produced reasonable results and recommended that its procedure be adopted.

It seems to the Board that much of the criticism of this proposal is unwarranted. As acknowledged by AMPCO and OMEA, allocation of capacity costs is the most controversial exercise. It is clear that there is no absolutely correct method; nor can it be said that any method is absolutely wrong.

The Board regards the adoption of the EUE as a basis for allocation as an entirely objective approach since those estimates are made by a third party; consequently, considerable subjectivity is removed from the rate making function. The Board is also of the opinion that the criticism regarding comprehensibility is not well founded, and that in any event, it is the rate structure rather than the derivation of the rate that "should be publicly acceptable and comprehensible" to customers. The conceptual development must, of course, be reasonable and understandable to the regulator; and the Board is satisfied on that account. The fact that the methodology is not already in place elsewhere, does not seem to the Board to be a valid basis upon which to assess the worthiness of the proposal.

The Board does not support OMEA's recommendation that demand charges should continue to be billed on a non time-differentiated, non coincident basis as at present.

The Board is of the opinion that Hydro has developed a procedure with sufficient constraints and parameters to ensure stability and at the same time achieve cost tracking that satisfies the equal treatment of equals criterion at this stage of TOU rate implementation.

The Board therefore recommends the acceptance of the proposed method of capacity cost allocation to rating periods.

Energy Charges

Hydro's proposal to allocate energy costs and energy related costs to rating periods would require two steps. The exclusively energy related costs allocation would be relatively straightforward in that it would simply accumulate all exclusively fuel related costs within each rating period, which could then be expressed in terms of kilowatt hours delivered in each of those rating periods.

The allocation of energy related generating plant costs including the small amount of energy related grid costs would be a more complicated process. These costs would be assigned to rating periods based on a four year average of the relative operating savings accruing to each period. Hydro submitted that "the operating savings for each period are determined by costing the period's energy production at the difference between the period's average incremental energy cost and its unit exclusively energy related costs (excluding overhead costs)". The operating savings calculated in this manner would tend to be relatively constant and consequently, when added to the exclusively energy related portion of energy costs, would reduce the variation between rating periods considerably.

OMEA found Hydro's proposed treatment of energy costs to be acceptable and recommended that the resulting energy rates be adopted.

Board Counsel submitted, however, that the proposal is complex; and Dr. Melody regarded it as "another example of misapplication of marginal cost principles". Dr. Melody suggested as an alternative, that the exclusively energy related cost could be allocated to rating periods as proposed by Hydro and then increased proportionately so as to absorb the total energy related plant costs. The Board realizes that since the energy savings as determined by Hydro are relatively stable between periods, the Melody proposal would result in energy rates quite similar to those proposed by Hydro.

AMPCO submitted that energy rates should be developed in accordance with the NARUC manual and furthermore, that they should be diurnally differentiated. It argued that the daily peak rates could be based upon the allocation of exclusively energy related costs as developed by Hydro.

In its deliberations, the Board considered the degree of similarity in the results of Dr. Melody's proposed procedure for allocating both exclusively energy and energy related costs, and the results achieved by Hydro's more complex procedure. Furthermore, Mr. Schwartz, in discussion with Dr. Melody, brought out that the results would be very similar. The Board could well accept the proposal of Dr. Melody except for the fact that without subjectively imposed constraints and other parameters, it could be unstable from year to year.

The Board is also impressed with AMPCO's proposal to differentiate energy charges diurnally for the 1983 rates; but considers that acceptance of that proposal should coincide with the consolidation of all customers into a single customer class.

The Board therefore recommends for the development of energy charges for 1983, the acceptance of the Hydro method of allocating exclusively energy related costs to rating periods as well as the four year forward averaging and subsequent allocation of energy related generation and grid costs to rating periods.

Cost Allocation to Customer Classes

The final step in the cost allocation process would be to allocate costs to customer classes -- i.e., municipal utilities and the Power District -- and subsequently, to allocate costs between direct industrials as a class and the rural customer class within the Power District.

The energy related common costs in each period would be allocated to municipal utilities and the Power District, based on their average use in each period. The Power District allocation would be further assigned to the direct and rural customer classes, based on the energy use within each rating period.

Capacity related common costs would be allocated to each utility and the Power District, based upon the sum of the monthly peaks in the peak periods of each season. Similarly, the Power District capacity related costs would be allocated to each industrial customer and the rural retail as a group, on the basis of the sum of the monthly peaks in the peak periods of each season. It was proposed to measure all peak demands over a 60 minute interval.

For pricing purposes, the costs allocated as set out above, would be allocated among utilities in accordance with their average seasonal capacity requirement. Within the Power District, the direct and rural customer classes would be allocated capacity related costs, based on their relative group peak loads in the peak period of each season.

The proposed allocation procedure was not challenged by any of the participants and, in the opinion of the Board, is a rational allocation method which merits acceptance for 1983 rate development purposes.

Rates

The Demand Interval

Hydro proposed that all demand measurements be based upon a 60 minute interval.

The proposal was favourably received by LASCO and IVACO, two direct industrial customers of Hydro. The proposal was regarded by their witness, Mr. Slater, as largely satisfying the claim of steel furnace loads to diversity benefits.

AMPCO also recommended that the 60 minute demand interval be accepted.

The Board considers the proposal to be a satisfactory compliance with its recommendation in H.R.5 that suggested a move first to a 30 minute demand interval and ultimately to a 60 minute demand interval.

The propriety of adopting a 60 minute demand interval was not challenged by any of the participants. This does not mean that the propriety of assessing demand charges separately from energy was not challenged.

The Board therefore recommends the acceptance of a 60 minute demand interval for the purpose of assessing demand charges in 1983.

The Demand Charge

Hydro proposed to assess demand charges based upon the maximum load imposed by any customer during a

60 minute demand interval in both winter and summer peak periods.

Several participants questioned the necessity of a demand charge.

Mr. Rogers urged the Board to recommend that Hydro de-emphasize the demand charge component as TOU rates are introduced; and submitted that eventually demand charge components should disappear from the rate structure. He pointed out that Mr. Slater and Dr. Melody both favoured the elimination of a demand charge as more rating periods are introduced.

OMEA recommended that Hydro continue to measure monthly demands and continue demand charges on a non coincidental basis each month. Ms. Chown, witness for OMEA, had testified that in view of Hydro's considerable excess capacity situation, there was, in effect, no peak period and submitted that demand charges need not be seasonally differentiated.

Hydro regarded the demand charge as a proxy for time-differentiation. It submitted that its proposal for 1983 rates de-emphasizes the demand charge component. As additional pricing periods are added, Hydro agreed that the demand charge could be de-emphasized further, but maintained that it should not be eliminated entirely.

The Board is of the opinion that as rates are more fully time-differentiated, the demand charge should be de-emphasized and could eventually be eliminated entirely. However, this is an evolutionary process and it would be premature at this time to make any definitive decision in that respect. The Board regards Hydro's treatment of demand charges as reasonable for implementation in 1983. Furthermore, it is of the opinion that further reductions in the demand charge should occur with further differentiation of rates. However, a decision about its complete elimination must await customer response data.

The Energy Charge

Hydro proposed that energy charges be differentiated seasonally only for 1983, to be followed by diurnal differentiation in 1984.

Board Counsel recommended that Hydro introduce a "modest" energy charge differential diurnally in 1983. He argued that this would convey an appropriate signal to customers prior to full time-differentiation in 1984.

He made a further recommendation that Hydro should send "phantom bills" to its customers in 1983 showing the effect of fully differentiated energy charges that would be applied in 1984. Hydro argued that this should not be necessary when dealing with large sophisticated customers; and the Board agrees with Hydro on that point.

The Board agrees with its Counsel that Hydro should introduce a very modest diurnal differentiation of energy charges as it would send out an appropriate signal. In addition, it would test the adequacy of the instrumentation to be used in assembling data for billing purposes and test the accuracy of computer billing programs while enabling customers to make calculations of the impact of further rate changes.

The Board therefore recommends that a diurnal differential which need not exceed one mill per kilowatt hour be introduced with the 1983 rate increase.

Municipal Utility Rates

In developing the rate for municipal utilities, the demand charge was derived by dividing the total capacity related costs assigned to each season by the sum of the individual utility demands in the peak periods of each season. All utilities were said to have similar peaking tendencies and consequently, Hydro deemed there to be no diversity between them.

The energy charge is to be derived by simply dividing the energy and energy related costs assigned to each season by the expected sales in the winter and summer. Hydro proposed to defer diurnal differentiation of the energy charge until 1984. In summary, demand charges were proposed by Hydro to be differentiated seasonally and diurnally; whereas energy charges were proposed to be differentiated seasonally only in 1983.

The non common costs would be added as separate charges if a utility takes service at less than 50 KV (i.e., 44 KV). A utility taking service at a voltage in excess of 115 KV would get an appropriate discount.

The Board recommends the conversion of allocated costs into rates of charge as proposed except that as already recommended, the energy charge should contain a modest diurnal differential.

Direct Customer Rates

The section on cost allocation dealt with the allocation of cost to the Power District and its subsequent allocation between direct industrials and rural retail customers. In the development of rates for the direct industrial customers, it is first necessary to remove the loads of the two private distributing companies to which Hydro supplies power. A detailed breakdown of loads by voltage level as well as season is then developed for the direct industrials.

Rates were developed which are applicable to customers taking service at the voltages of 230 KV, 115 KV and less than 115 KV. The demand charges vary with delivery voltage so that savings in voltage losses and costs of dedicated facilities are appropriately reflected in the charges. The adequacy of the charges reflecting the three different voltage levels was not determinable. However, Hydro is apparently studying this matter further and the adequacy of the differentials should be determinable at the next hearing.

AMPCO recommended that in order to treat low load factor customers fairly, Hydro should consider a "Wright" rate. This rate form expresses all rates in terms of kilowatt hours based upon specified hours use of the demand. Hydro argued that with the introduction of time-differentiated rates, the Wright rate form becomes obsolete. The Board agrees with Hydro's position on the AMPCO proposal.

The Board regards the proposed demand charge differential which reflects the charges at various voltage levels to be acceptable for the purpose of setting the 1983 rates.

Hydro also proposed to assess an off peak excess demand charge when customers taking service at less than 115 KV, impose demands exceeding the on peak demand. The proposed charge is intended to recover the resulting costs of the excess capacity requirement in local facilities. This proposal was not challenged. The proposed charge of 53 cents per kilowatt is nominal by comparison to peak or off peak demand charges. The Board regards it as a reasonable adjustment in these circumstances, and recommends acceptance of the charge for 1983 rate purposes.

Distribution Companies

Hydro provides service to two companies that retail electrical energy to the end use customer. It was proposed that these two companies be assessed the same rates as those applied to municipal utilities.

Failing any evidence to the contrary, the Board regards the proposal as reasonable and recommends its acceptance for 1983 rate purposes.

Interruptible Rates

Ontario Hydro has in the past offered two interruptible rates: "A" and "B". The Interruptible B rate was based upon the potential savings accruing to Hydro where interruption would enable the shutting down of a generating unit with high running costs. It was proposed that the Interruptible B rate be discontinued because there was said to be difficulty in the administration of the rate. As well, it would necessitate distinguishing economy interruption from interruptions because of capacity limitations and, in any event, Hydro expected that there will be no economy-justified interruption for the next five years.

It was proposed to modify the Interruptible A rate significantly. The demand charge of the firm industrial rate would be reduced by 78 cents per kilowatt of monthly demand (presumably as compensation for the interruption privilege) which is quite comparable to the present practice but, in addition, a rebate of 6.6 cents per kilowatt per hour of interruption was also proposed.

Hydro argued that the presence of interruptible customers enables the "mothballing" of plants in excess to domestic and export requirements, thus reducing OM&A costs; and that this cost saving could be passed on to customers in the form of a demand charge discount. It was proposed that this class of service should be called "Capacity Interruptible" and that the designations Interruptible A and B be discontinued.

It was also proposed that firm export contracts would have priority over interruptible service but that interruptible service would have priority over non firm export sales. These proposed priorities may be modified in the event of interruption based on transmission capacity limitations.

Board Counsel argued that interruption privileges might be justified where there are transmission limitations. Also, because of a long history of interruptible power, it may be unfair to discontinue the practice abruptly. However, he also argued that in view of the considerable excess capacity, the discount of 78 cents per kilowatt is excessive as it would offer a 14 percent and 24 percent reduction from firm rate demand charges in winter and summer, respectively.

OMEA argued that under the currently prevailing conditions of excess capacity, the discount should be small and the rebate negligible. However, it submitted that the 78 cents per kilowatt discount and the rebate were acceptable for 1983 rate purposes, but recommended that both be re-evaluated annually.

AMPCO argued that the capacity interruptible customer should be given a higher fixed discount in lieu of the proposed rebate for cut hours since the interruptible customer is served from the reserve for firm power and the rebate is based upon the EUE concept which does not conform with reality.

There was a consensus that an Interruptible B classification is unnecessary under the present circumstances. The Board therefore recommends its discontinuance.

The Board is in substantial agreement with its Counsel and OMEA with respect to the level of discount offered by Hydro in return for the interruption privilege. The Board observes that although the proposal may have a sound conceptual basis, the cost (or savings) were not well defined.

The Board therefore recommends for purposes of the 1983 interruptible rate that the seasonal demand charge differential between firm and interruptible be accepted. However, because it appears excessive and in order to eliminate further complications, the 6.6 cents per kilowatt hour rebate, in the Board's opinion, should be substantially reduced or eliminated entirely. The Board regards the 6.6 cent rebate per kilowatt per hour of interruption as the equivalent to a rebate of 6.6 cents per kilowatt hour of energy not taken. The allowance seems excessive and the timing of its implementation seems ill advised. The Board therefore recommends that Hydro defer implementation of this feature for at least two years -- by which time, the customer response to more fully differentiated rates will be more apparent.

Negotiated Rates

Hydro proposed that in addition to the Capacity Interruptible Service, there should be provision for the negotiation of rates with very large customers.

Mr. Rogers argued against the introduction of negotiated rates, submitting that such rates "cause potential for undue discrimination, suspicion and administrative complications". He also pointed out that the details for the filing of negotiated contracts and the question of confidentiality after filing, was not clear. The Board notes that Mr. Taylor testified that Hydro would undertake to satisfy the Board with respect to the reasonableness and cost justification of such contracts.

The Board agrees with its Counsel; and furthermore, there is no evidence of any direct connection between time-differentiated rates and the need for negotiated rates. Indeed, the Board is of the opinion that time-differentiation of rates would do much to negate the need for such a provision and accordingly, Hydro should await customer response to the new rate structure. Finally, the applicability of such an offering is defined only in very broad terms, which could result in unforeseen complications.

For these reasons, the Board recommends that Hydro not proceed at this time with the offering of negotiated rates.

Anticipated Impact

In attempting to determine the impact of the proposed rates on various customers, Hydro assumed that there would be no change during 1983 in electricity use patterns or quantities taken by its customers. It determined that if all cost increases being sought were approved, the municipal utilities on average would experience a 13.6 percent increase but proposed changes in costing and pricing policies would reduce this by 0.6 percent. On the other hand, making the same assumptions, direct industrial customers would experience an increase of 14.2 percent as a result of increased costs, plus 0.6 percent as a result of proposed changes in costing and pricing policies.

Individual municipal utilities could have increases ranging above and below the 13 percent calculated to be the average. Hydro has proposed to limit the maximum impact on any municipal utility arising out of costing and pricing changes to 5 percent, thus restricting the increase on any municipal utility to a maximum of 18 percent.

With respect to direct industrial customers, Hydro submitted that impacts would vary from an increase of 20.2 percent (to one customer) to a decrease of 5.9 percent (to one customer), with the majority falling in the 12 percent to 18 percent range.

AMPCO, after compiling data on 34 of its 54 members, challenged the findings of Hydro and claimed that one customer would have an increase of 22.5 percent. It also submitted that the proposed increase would undermine the competitiveness of Ontario industry; would undermine the economics of investment in monitoring and peak shaving equipment; and that the inherent instability of the rates would induce industry to seek alternative locations.

Mr. Rogers criticized Hydro for the lack of research done in determining customer response to TOU rates. He also expressed concern about the alleged impact of the rate proposals on northern Ontario communities.

Mr. Schwartz argued that in order to reduce the impact of new rates, the municipal utilities need more time to prepare for implementation of TOU rates at the retail level. He recommended that the implementation of TOU rates be deferred until April of 1984; and that, in the interim, Hydro bill its customers in accordance with the rate structure presently in use and include with such billing, for informational purposes, the charges that would result from TOU rates.

OFA also urged the Board to defer implementation of TOU rates in favour of the status quo until such time as Hydro has submitted more convincing evidence.

UDI urged deferment of implementation to allow political input by the affected end users.

In this respect, the Board finds that it can give little weight to the arguments of AMPCO. Even if Hydro collects the full revenue requirement being sought, the industrial sector would not be economically disadvantaged as all public utilities, being capital intensive, are confronted with increased costs. In any event, cost of electrical energy is seldom a major consideration in industry location. Furthermore, load monitoring and load management equipment will, in all probability, be more beneficial under the new pricing structure than under the old. With respect to the stability of rates, Hydro has undertaken to employ numerous procedures intended to ensure rate stability in the future.

The Board was concerned with the apparent impact of the rate proposals on the northern communities. The Board is now convinced, however, that the rate proposals impose no inequity. According to filed evidence, the municipal utilities experiencing the largest increases are spread throughout the province and are not concentrated in the north. Furthermore, cost allocation appears to account for almost all of the increased differential, rather than seasonality of rates.

Furthermore, some of the variation in increases are a result of direct assignment of certain transmission and transformation facilities which improves cost tracking. This will have an impact in the year that such an assignment is made; but it is an increase in that year only and it is not of a recurring nature. It could have been argued that there was previously an inherent inequity, in that such costs currently classified as common are burdened equally on all customers in that class even though such plant is dedicated to the exclusive use of a customer or class of customers. In any event, Hydro has undertaken to restrict the impact resulting from changes in costing and pricing to 5 percent.

The Board is of the opinion that Hydro has invested sufficient effort into making all of its customers familiar with the plan to implement TOU rates and, in any event, it is not imperative that all retail customers be assessed TOU rates at a time coincident with the implementation at the bulk power level. Furthermore, seasonal differentiation at both the bulk and retail level can be accommodated in rates with a minimum of innovation. For these reasons, the Board recommends rejection of the submission of OMEA and OFA for a further delay in the implementation date.

The Board is satisfied with the data provided and that Hydro has taken reasonable steps to minimize the impact of the transition to TOU rates. In the opinion of the Board, no customer will be unjustly treated under the proposed costing procedures and pricing structures.

Regulatory Concerns

Retail Rates

Dr. Rhodes of UDI and Mr. Howe of ONGA, as well as several private citizens who made submissions to the Board, expressed concerns emanating primarily from the impact of TOU rates on end users. These participants were reminded that retail rates in the rural areas and within the municipal utilities fall beyond the jurisdictional scope of this Board. However, the Board at the same time realizes that these are very real concerns.

Although the Board is reluctant to take a stand on this issue at this time, it does feel obliged to report on anxieties of a public interest nature, with respect to retail rates. The Board notes again that the Minister may refer this kind of inquiry to the Board. It is, in the opinion of the Board, a matter of Government policy.

The Board in its H.R.10 report addressed a similar concern:

> "Until new rates resulting from the costing and pricing study are in effect, the Board believes that it would be premature for it to inquire into municipal rates, although at some point in the future such an inquiry would be appropriate."

Perceiving considerable public interest with respect to retail rates, both at the rural retail level and within the municipal utilities, the Board recommends that a rate review process be examined. The Board is also of the opinion that a review of bulk power rates will become increasingly difficult when considered in isolation from retail rates. The review should be accommodated in a public hearing process so as to give all parties an opportunity to be heard.

System Expansion

Mr Rogers submitted that although the system expansion is normally excluded from the rate reference, it is time for this practice to be seriously questioned, particularly in view of Ontario Hydro's excess capacity which will be expanded further with the addition of new generating plant. He urged the Board to draw to the Minister's attention, the direct impact which the system expansion program has on the revenue requirement, as well as problems of cost allocation and rate design which it creates.

In reference to the excess capacity situation, AMPCO submitted that Ontario Hydro's system expansion is not motivated entirely by a desire to achieve energy savings but that:

> "Ontario Hydro's present system expansion plan is based on a number of different factors ranging from a desire to cut back in acid gas emissions to a desire to stimulate the provincial economy through the BILD program."

In the opinion of the Board, this implication should not to be taken lightly. Hydro argued that this again, is a matter of Government policy but that if the Minister deems it appropriate that the OEB should review Hydro's system expansion program, then such a review should not be a part of the annual rate review.

Again, the Board feels it to be improper to take a position on this issue as it too regards it as a matter of Government policy. However, the Board must admit that system costs are heavily impacted by the capital program and that little can be done by the Board in the way of economy measures to reduce such costs without effective participation in the determination of the system expansion program.

In the opinion of the Board, any benefits in the way of cost reductions associated with further regulation of capital programs would be of a very long term nature. It seems reasonable to assume that any such regulation, if exercised by the OEB, would not be coincidental with the rate review process.

Finally, it is the opinion of the Board that judgment as to system capacity needs is best exercised by Hydro itself and its Board of Directors, with policy guidance from the Minister.

COSTS

An order will be made charging the costs of the Board to Ontario Hydro.

OPINIONS OF THE BOARD

In accordance with the Minister's instructions in the letter of reference, the Board has listed its recommendations in regard to revenue requirements below. The effect of these recommendations is to reduce the revenue requirement by $168.6 million. However, the effect on the revenue requirement as a result of this reduction is to increase borrowing requirements and thereby incur interest costs of $7 million which results in a reduction in the revenue requirement of $161.6 million.

Recommendations Relating to the 1983 Rate Proposal:

Revenue Requirement

Page No.		Reduction in the Revenue Requirement ($millions)
13	The change in Hydro's accounting policy dealing with the treatment of gains or losses on foreign exchange translations be deferred.	15
19	Hydro's forecast of the Canadian inflation rate be reduced by 2 percent.	34
20	Hydro's forecast of the American CPI be reduced by 2.5 percent.	33
20	Hydro's forecast of an increase in interest rates and a decline in the Canadian dollar beyond its original submission be accepted.	(29)

Page No.		Reduction in the Revenue Requirement ($millions)
22	Hydro's load forecast be accepted as originally submitted.	-
32	Hydro's forecast of energy production from Bruce and Pickering be increased by 1 to 2 percent.	11
33	Savings from the closing of Lennox be deducted from the revenue requirement.	1.5
37	The provisions for the past IFM charge be calculated on an extended basis.	9
50	Most of the program dealing with information management be postponed for the rate year.	4.6
54	Hydro impose salary guidelines on all employees on the Executive Salary Roll in amounts similar to those imposed on senior public servants in the Ontario Government.	1
55	Hydro remove the provision from its revenue requirement for the planning of a future nuclear generating plant.	1.5
58	The savings from the cancellation of the GPU contract be deducted from the revenue requirement.	3
62	Hydro's choice of the Deferred Dismantlement approach to decommissioning nuclear stations be accepted.	-
64	The savings from the sale of surplus land be deducted from the revenue requirement.	5
73	The rate of production of heavy water be reduced by 10 percent.	1
78	The savings from part of the findings of Phase I of Hydro's Cash Management Study be removed from the revenue requirement.	1
82	The provision for fuel channel removal be reduced.	6
91	The use of short term debt be reduced.	1

Page No.		Reduction in the Revenue Requirement ($millions)
103	The interest coverage ratio be set at 1.24.	70
180	The interest expense increase as a result of further borrowing requirements.	(7)
	TOTAL	161.6

The effect of this total reduction would be to lower Hydro's proposed average rate increase of 13.9 percent to 8.8 percent.

Cost Allocation and Rate Design

Page No.	
138	The CPP concept should be adopted for purposes of determining generation capacity costs.
150	The winter rating period should consist of months October through March and the summer season consist of the months April through September.
158	The EUE concept should be adopted for the distribution of capacity costs to pricing periods.
162	A sixty-minute demand interval for purposes of assessing demand charges should be accepted.
165	The bulk power rates should be seasonally and diurnally differentiated although the diurnal energy charge differential should be nomimal and not cost-based in 1983.
170	That the designations Interruptible A and Interruptible B rates be discontinued and replaced by an interruptible rate classification designated, "Capacity Interruptible."
171	The Capacity Interruptible Rate should not contain a rebate based upon kilowatt interruption per hour as proposed.
172	Hydro should not proceed at this time with its proposal to negotiate rates with certain large customers.

175 TOU rates should be assessed on all energy delivered to the bulk power customers on and after January 1, 1983.

The costs as reduced should be passed through the cost-allocation process in arriving at time-differentiated rates.

Recommendations Relating to Future Hearings

Page No.

26 That Hydro produce for the Board at the next hearing such information on coal supply contracts as is customarily supplied by utilities appearing before their regulatory agencies.

38 That Hydro be prepared to show cause at next year's hearing as to why the Board should not recommend termination of the NPD agreement and the moving of the training and testing to some other nuclear facility.

53 That Hydro's apparent practice of paying overtime to its engineering and management staff be closely examined at the next hearing.

58 & 73 That Hydro expedite its current review of heavy water production and include consideration of all accounting aspects of the program and report at the next hearing.

69 That Hydro pursue further the sinking fund alternative as part of its debt retirement program and report at the next hearing.

86 That Hydro examine the adequacy and effectiveness of the control of capital costs and report at the next hearing.

Other Matters

46 That Hydro reconsider policies with respect to:
- net income provision in the costing of internal transfers of electricity.
- costing of steam supplied to the BHWP
- costing of commissioning energy.

51 That Hydro proceed with its plan to relocate many of its head office staff to a location other than downtown Toronto and it again consider disposing of its former head office building.

59 That Hydro review the policy of not capitalizing the development costs of major projects prior to their authorization by Order-in-Council.

63 That Hydro check and report yearly on each of the factors in its determination of the provision for the cost of nuclear decommissioning.

Comments for Consideration of the Minister

108 An early report from the committee investigating Hydro's net income would be of assistance to the Board.

177 The Board is also of the opinion that a review of bulk power rates will become increasingly difficult when considered in isolation from retail rates. The Minister may wish to provide an appropriate forum for such investigation.

This is APPENDIX A to the Report
to the Minister of Energy of the
Ontario Energy Board on Ontario
Hydro Bulk Power Rates for 1983
dated August 31, 1982.

Ontario Hydro
700 University Avenue
Toronto, Ontario
M5G 1X6

Appendix 'A'

Hugh L. Macaulay, Chairman of the Board

February 11, 1982

The Honourable Robert Welch, Q.C.
Minister of Energy
Room 180
Legislative Building
Queen's Park
TORONTO, Ontario

Dear Minister:

In accordance with section 37 of the Ontario Energy Board Act, Ontario Hydro hereby submits to you its proposal to change electricity rates to its municipal utility and direct customers, effective January 1, 1983.

This proposal is based upon a revenue requirement for 1983 of $3,617 million. This represents an increase of $554 million over 1982's expected level. Of this increase, $110 million is expected to be derived from increased sales, leaving $444 million to be recovered through the proposed rate increase.

The proposed rate increase for municipal utilites averages 13.0 per cent. The effects of the increase will vary for each of the 324 municipal utilities according to individual utility monthly peaks, energy consumption, and service conditions.

The proposed increase in wholesale rates for the municipal utilities will probably result in the majority of them increasing the retail rates charged to their customers during 1983. These increases will vary among utilities and will depend, in part, upon their need to cover increases in their own costs.

The proposed rate increase for direct customers averages 14.8 per cent. As is the case for municipal utilities, the effects of the increase will vary for each of the approximately 100 large industrial customers.

For purposes of explanation, the various factors causing the rate increase have been grouped into the following categories:

- Load and System Growth results in new facilities being placed in service, particularly units at Pickering NGS B and Thunder Bay TGS and additions to the transmission system. The increase in production levels increases fuel requirements and subsequently fuel costs. The contribution from this category to the increase is $291 million.

- The Economic Environment facing Ontario Hydro results in increases in operation, maintenance and administration as well as fuel and related costs. These increases are partially offset by the effect of increases in prices received for secondary electricity sales. This factor accounts for $177 million of the increase.

- Internal Factors involve a number of offsetting items. The most significant internal factor causing an increase is net income which is necessary in order to meet an interest coverage ratio of 1.275. The largest offset is interest savings from internally generated funds. The net effect of the internal factors is an increase of $86 million to the revenue requirement.

New costing and pricing policies and practices have been incorporated in the proposed rates for 1983. You will recall that since the OEB report arising from the costing and pricing hearing was issued in December 1979, Ontario Hydro has consulted with its customers and other interested parties on the new costing and pricing proposals and adjustments were made to the proposals during this process. The costing & pricing principles basic to the 1983 rates were approved by the Hydro Board at its October 1981 meeting.

The adoption of the new principles reduces the average rate increase to municipal utilities by 1.2 percentage points and leaves the average rate increase to direct customers unchanged.

You will note, we have not included the specific rate schedules for municipal utilities and direct customers. These will be forwarded to you after the Hydro Board meeting in March.

Sincerely,

Hugh Macaulay

Ontario

Energy
Ontario

Minister

Ministry
of
Energy

Queen's Par
Toronto, Ont
M7A 2B7
416/965-204
Telex 06217

RECEIVED
FEB 15 1982
CHAIRMAN
ONTARIO ENERGY BOARD

February 12, 1982.

Mr. Robert H. Clendining
Chairman
Ontario Energy Board
9th Floor
14 Carlton Street
Toronto, Ontario
M5B 1J2

Dear Mr. Chairman

Pursuant to Section 37 of the Ontario Energy Board Act, I hereby refer to the Ontario Energy Board for investigation, examination and report, the attached proposal of Ontario Hydro to change effective the first day of January, 1983, the rates or charges including the effect of revisions to the policies and practices respecting power costing and rate making to its customers, as defined in the Act.

The attached proposal sets out the revenue requirement for 1983 and the required average percentage increases to the municipal utility and direct customer groups. The actual rate schedules proposed will be forwarded to you early in March.

I am specifying the following terms of reference for the guidance of the Board:

1. The Board shall examine and report on the manner in which Ontario Hydro has determined its revenue requirement and the extent to which Ontario Hydro has kept its proposed revenue requirement allocated to the municipal utilities and direct customers for 1983 as low as feasible, consistent with the maintenance of its financial soundness, its ability to attract capital at favourable rates, and the reliability and quality of its service to its customers.

2. The government study on the appropriate level of Ontario Hydro's net income has not been finalized. Your examination of this aspect, therefore, should be on a similar basis as in previous years, keeping in mind a desire for stable rate increases and for the maintenance of Hydro's financial soundness in the future.

3. In connection with the revisions to the policies and practices respecting power costing and rate making, the Board shall investigate whether the proposal results in a reasonable and appropriate distribution of the costs in providing electricity to the municipal utilities and Ontario Hydro's direct customers.

4. The principles of electricity costing and pricing were debated extensively during your Board's hearing on the Principles of Electricity Costing and Pricing for Ontario Hydro. As Hydro's proposal results from that hearing and subsequent report, the principles examined at that time should not require re-examination.

5. As in previous years, the system expansion program is excluded from this review.

I would appreciate the Board structuring its recommendations so that Ontario Hydro may act directly on the revenue requirement, the revisions to the costing and pricing policies and practices and the resulting rate levels, in accordance with its responsibilities under the Power Corporation Act and so that I may consider separately such other recommendations as the Board may make.

I look forward to receiving the Board's report.

Yours sincerely,

Robert Welch
Minister of Energy

Ontario Hydr
700 University Aven
Toronto Onta
M5G 1X6

Hugh L Macaulay Chairman of the Boa

RECEIVED

March 8, 1982

The Honourable Robert Welch, Q.C.
Minister of Energy
Room 180
Legislative Building
Queen's Park
TORONTO, Ontario

Dear Minister:

Further to my letter to you on February 11, I am attaching the detailed rate schedules for municipal utilities and direct customers, approved today by the Ontario Hydro board.

The rate schedules are consistent with the customer class rate increases identified in my February 11th letter regarding proposed rates for 1983. Since these form part of our proposal, we would appreciate you forwarding these to the Ontario Energy Board.

Sincerely,

Hugh

Attach.

RECEIVED
OFFICE OF THE MINISTER
MAR 08 1982
ENERGY

Mr Reid [illegible]

FYI

Attachment A

Proposed 1983 Wholesale Rates for
Municipal Electric Utilities

MUNICIPAL UTILITY RATE SCHEDULE FOR 1983

Demand Charges ($/kW/month)*	Rates Over 50 KV	 Under 50 KV
Winter	8.19	8.86
Summer	4.75	5.42
Off-peak Excess Demand**	-	0.67

Energy Charges (¢/kW.h)	Over 50 KV	Under 50 KV
Winter - peak	2.11	2.11
- off-peak	2.11	2.11
Summer - peak	1.67	1.67
- off-peak	1.67	1.67

Other Charges and Credits

Ownership of Low Voltage Switchgear Credit***	$ 0.11/kW/month

Specific Charges

Distribution Stations	As applicable to individual utilities
Distribution Lines	As applicable to individual utilities

*The demand charge applies in the peak period of 7:00 a.m. to 11:00 p.m., Monday through Friday, except for public holidays as established from time-to-time.

Winter Season: September through March
Summer Season: April through August

**The off-peak excess demand charge applies in the off-peak period and to the amount by which peak demand in the off-peak period exceeds that in the peak period.

***Applicable to peak demand and off-peak excess demand.

Attachment B

Proposed 1983 Rates for Direct Customers

ATTACHMENT B

DIRECT INDUSTRIAL RATE SCHEDULE FOR 1983

1. STANDARD RATES

(a) Demand Charges

FIRM - per KW of Billing Demand per month		APPROVED FOR 1982	PROPOSED FOR 1983
230 kV	Winter	$6.02	$5.64*
	Summer	6.02	3.22*
115 kV	Winter	6.15	5.77*
	Summer	6.15	3.35*
10-50 kV #	Winter	6.48	6.30*
	Summer	6.48	3.88*
Under 10 kV #	Winter	6.93	6.30*
	Summer	6.93	3.88*
INTERRUPTIBLE - per KW of Billing Demand per Month			
230 kV	Winter	** 5.17	4.86*
	Summer	5.17	2.44*
115 kV	Winter	** 5.30	4.99*
	Summer	5.30	2.57*
10-50 kV #	Winter	** 5.63	5.52*
	Summer	5.63	3.10*
Under 10 kV #	Winter	** 6.08	5.52*
	Summer	6.08	3.10*
INTERRUPTIBLE REBATE - per KW per cut hour		-	6.6¢
OFF-PEAK EXCESS DEMAND CHARGE (Under 115 KV) ($/kW/month)* **		-	0.53

(b) Energy Charges - per kWh

Winter	- peak	1.45¢	2.29
	- off-peak	1.45¢	2.29
Summer	- peak	1.45¢	1.78
	- off-peak	1.45¢	1.78

2. DISTRIBUTING COMPANIES

(a) Demand Charges	APPROVED FOR 1982	PROPOSED FOR 1983
Gananoque E.L. & W.S. Co. Ltd. - (44 kV)		
FIRM - per KW per month		
Winter	$8.63	$9.66*
Summer	8.63	5.42*
Off-peak Excess Demand Charge***	-	0.67
Great Lakes Power Limited (230 kV)		
FIRM - per KW per month		
Winter	8.08	8.19*
Summer	8.08	4.75*
(b) Energy Charges - per kWh		
Winter - peak	1.45¢	2.11¢
" - off-peak	1.45¢	2.11¢
Summer - peak	1.45¢	1.67¢
- off-peak	1.45¢	1.67¢

3. MISCELLANEOUS RATES - per KW per month

	Approved for 1982	Proposed for 1983
Excess Demand Charge	125% of Firm Demand Charge	125% of Firm Demand Charge
Short Term Firm	125% of Firm Demand Charge	125% of Firm Demand Charge
Short Term Interruptible	125% of Interruptible Demand Charge	125% of Interruptible Demand Charge
Supplemental	125% of Firm Demand Charge	125% of Firm Demand Charge

Notes:

*Demand charges apply in the peak period from 7:00 a.m. to 11:00 p.m., Monday through Friday, except for public holidays established from time-to-time.

Winter Season - September through March
Summer Season - April through August

**For 1982, only Interruptible A rates are shown for comparison purpose.

***The off-peak excess demand charge applies in the off-peak period and to the amount by which peak demand in the off-peak period exceeds that in the peak period.

#For 1983, these rates are consolidated into an "Under 115 KV" rate

This is APPENDIX B to the Report to the Minister of Energy of the Ontario Energy Board on Ontario Hydro Bulk Power Rates for 1983 dated August 31, 1982.

Appendix 'B'

List of Witnesses in order of Appearances (by sponsor)

	Title
ONTARIO HYDRO	
W. M. Van Veghel	Senior Economist Economics Division
P. S. Spiro	Economist in Financial Markets & Project Leader in Economics Division
L. T. Higgins	Manager, Load Forecasts
I. R. Russell	Manager Financial Planning Department Comptrollers Division
R. D. Nevison	Manager Operations Services and Foreign Projects
J. D. Smith	Manager Financial & Business Planning Fuels Division
J. Matthew	Vice President Power Systems Program
M. Nastich	President
R. W. Bartholomew	Corporate Comptroller
C. R. Chorlton	Manager Program Budgets Department Comptroller Division
G. R. Tebo	Marketing Engineer - Interconnections
D. B. MacCarthy	Vice President - Corporate Relations
J. R. O'Connor	Director Public Relations Division
P. E. Newdick	Partner Woods Gordon
T. B. Reynolds	Director Corporate Power System Programming Division

	Title
ONTARIO HYDRO (cont'd)	
A. G. Brace	Branch Comptroller Design & Construction
D. C. Park	Branch Comptroller Distribution & Marketing
M. J. Ferrara	Assistant Treasurer, Corporate
J. E. Cook	Manager Short Term Investments Treasury Division
R. A. Hornowski	Manager Accounting Services Department Financial Information Systems Division
C. Alpay	Section Head Fixed Asset & Depreciation Accounting Financial Information Systems Division
D.L.S. Bate	Program Manager Planning and Development Design and Development Division
T. S. Drolet	Program Manager Fusion Engineering Materials Program
R. J. Lawson	Manager, Financial Policy Dept. Comptroller's Division
E. H. Burdette	Vice President - Finance
J. R. Furse	Partner, National Accounting Standards Clarkson Gordon
H. C. Palmer	Director Rates and Market Research Division
W. S. Taylor	Director Customers Service Division
S. L. Osler	Section Head - Power Costing Financial Policy Department Comptroller's Division

	Title
ONTARIO HYDRO (cont'd)	
S. Y. Kim	Economist Economics Division
ONTARIO ENERGY BOARD	
L. de Bever	Director Chase Econometrics
W. H. Melody	Professor Department of Communication Simon Fraser University Burnaby, British Columbia
ONTARIO FEDERATION OF AGRICULTURE	
D. M. Ferns	Directors Policy Development Group Ontario Federation of Agriculture
LASCO & IVACO	
K. J. Slater	President Slater Energy Consultants, Inc.
AMPCO	
W. J. Chambers	Vice President G.M. Stamm Economic Consultants
G. M. Stamm	President G.M. Stamm Economic Consultants
K. H. Kidd	Partner Leighton & Kidd
ENERGY PROBE	
J. O. Gibbons	Economist
OMEA	
S. Chown	Executive Vice President Industrial Economics Inc.

This is APPENDIX C to the Report to the Minister of Energy of the Ontario Energy Board on Ontario Hydro Bulk Power Rates for 1983 dated August 31, 1982.

Appendix C

VIEWS OF THE PARTICIPANTS

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ENERGY PROBE 20

LASCO & IVACO 23

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Response of Ontario Hydro 74

VIEWS OF THE PARTICIPANTS

At the outset and during these proceedings all participants were encouraged to provide the Board with a summary of their positions and arguments. A request of this nature had not previously been made in such proceedings and so it may be regarded as an experiment or innovation, hopefully with mutual benefits. It was intended that the proposed procedure would give all participants an opportunity to state succinctly and precisely in their own words the positions taken on the various issues.

The Board has edited the submissions of the participants and at the same time it has made an effort to retain key words and phrases used by them. There has been a considerable condensation of these statements but every effort has been made to maintain the thrust of the summarized arguments.

* * *

VIEWS OF THE PARTICIPANTS

Positions Taken by Intervenors

AMPCO

AMPCO argued that Ontario Hydro should reduce its 1983 revenue requirement materially below its forecast of $3617 million by:

- increasing low cost nuclear energy production at Pickering NGS and Bruce NGSD;
- crediting Pickering NGS unit 5 commissioning energy to 1983 ratepayers;
- holding OM&A cost escalation at the CPI;
- allocating Bruce Heavy Water Plant "BHWP" amortization costs to the heavy water cost centre;
- reducing the irradiated fuel management charge;
- deleting the provision for future fuel channel removal costs;
- crediting gains on premature debt retirement to current operations;
- cancelling the provision for future foreign exchange losses; and,
- adopting a 1.23 interest coverage in order to bold the debt/equity constant.

With the foregoing reductions, AMPCO estimated that the bulk power rate increase from 1982 to 1983 can be held to about 2.0 percent.

Continuation of Ontario Hydro's capital expansion plans, in the face of the present level of over capacity, is in part due to the desire to provide a stimulus to the construction industry in the Province, but AMPCO questioned who should properly pay for a program undertaken largely to fulfill those goals.

AMPCO argued that Pickering 5 will not be cost effective. The entire electrical system has excess capacity and no evidence of the need for Pickering 5 was provided. Therefore AMPCO submitted that the best interests of Hydro's ratepayers are not being served by bringing Pickering 5 into service.

It pointed out that in the midst of a severe recession where many of Ontario Hydro's significant industrial customers have seen profit margins disappear and in many cases are operating in a net loss position, Ontario Hydro had proposed a 13.0 percent rate increase for municipal customers and a 14.9 percent increase for direct customers. AMPCO undertook a survey of its own members with respect to the impact of the proposed rate increase and the 34 firms which responded estimated an average increase of 17.2 percent (with the maximum increase being 21.5 percent and the minimum being 13.4 percent).

AMPCO argued that the record in this hearing makes it very clear that Hydro does not adequately consider the impact of its rate proposal on its customers. It called evidence that there were numerous instances where the proposed rate increase would severely affect the provincial economy, including industries where the proposed increase will hurt the competitive position of Ontario's industries in important export markets.

AMPCO considered that rate increases of the severity of those proposed should be subject to a full and open enquiry and argued that it was frustrated because of the tight schedule and short lead times. After receiving Hydro's submission of 36 exhibits (1,300 pages), AMPCO had 19 working days to prepare interrogatories for submission by the deadline of April 8 in respect of the revenue requirement. One week after the filing of interrogatories and 24 working days after Hydro filed its incomplete submission, the intervenors were required to file their evidence. When the hearing opened, 61 of 82 AMPCO interrogatories remained to be answered, as did 51 of 110 Ontario Energy Board interrogatories.

A review of Hydro's forecast of 1983 hydraulic and nuclear energy production led AMPCO to recommend that the Board reduce the energy variable cost forecast by $54.7 million to reflect increased production from these low cost resources.

In regard to Pickering NGS Unit 5 which is scheduled for commissioning in April 1983, AMPCO noted that a one month delay would reduce the 1983 revenue requirement by $11 million. AMPCO pointed out that nuclear units coming on stream will have a sharp impact on electricity prices in the medium term and that there will be a cascading, negative impact in 1984 and 1985 as more and more units enter service. AMPCO submitted that the Board should consider mechanisms which would smooth these negative impacts. Also, that there is precedence and justification for forward smoothing of the initial adverse impacts associated with the commissioning of major power projects.

AMPCO also recommended that the accounting adjustment for commissioning energy be cancelled. Hydro proposed to cost such energy at $26.6 million, with the difference of $22.6 million from actual production costs to be deducted from the capitalized cost of Pickering 5. AMPCO argued that 1983 commissioning energy be included in energy variable costs at its actual nuclear fueling cost, which would reduce the 1983 energy variable cost forecast by $22.6 million.

AMPCO considered that the intention of the parties in regard to the Nuclear Payback Agreement was to share the risks associated with Canada's first full scale CANDU plant. AMPCO contended that following the execution of the agreement, the unprecedented escalation in coal costs increased the payback to levels which could not have been anticipated by the parties when this was concluded. AMPCO argued that Hydro should continue to press for a reasonable sum as a final settlement.

AMPCO pointed out that for 1981, Ontario Hydro's actual OM&A costs were $765 million, as compared with the projection of $741 million prepared a few months earlier and used for rate setting purposes. AMPCO took the position that since 1975 (with the exception of 1976) the actual results invariably exceeded the rate setting forecast.

AMPCO submitted that Ontario Hydro has been trying to control OM&A costs by adopting the latest management control systems such as management by objectives, zero based budgeting, comptrollership studies, operational auditing, and "such catchy acronymic programs as COPE, CMCP, PLEMS, PBBA, and now, OOOH, for at least the past seven or eight years". The record in this case attests to Hydro's efforts in this regard but it tells very little about the attitudes and actions of the line organizations towards the process.

In his evidence, Mr. Nastich, while generally agreeing that the business community in Canada has reacted to this difficult economic period with wage freezes or layoffs, submitted that it is hard for Hydro to do likewise because its capital program is "proceeding to the benefit of the Province, providing jobs and making use of materials". In regard to the advancement of construction of Darlington NGS, Mr. Nastich testified that: "We are part of the underpinning of the economic growth of the Province of Ontario," relating the costs to a social program.

In this regard AMPCO quoted Task Force Hydro:

> "In the event that Hydro should be required to support regional development or contra-cyclical construction policies, the additional costs of so doing should not be built into power prices, but should be borne by subsidy from the Provincial treasury."

In regard to the staff wage levels, AMPCO pointed out that even in a highly clerical oriented branch like Distribution and Marketing, the average wage cost, including about 31 percent labour burden, was about $28,500 in 1981, rising to $33,300 in 1982, and $37,800 in 1983 -- increases of 19 percent and 13.5 percent, respectively. Similarly, AMPCO said, in the Production and Transmission Branch, a small staff of less than 20 had an average wage of $41,700 in 1981, rising to $52,900 in 1982, for an increase of 26.8 percent, and the addition of another single person in 1983 was reflected by a forecast increase of $100,000.

While it was apparently a "prime objective" of Ontario Hydro to reduce or eliminate the growth of centrally located staff, from 1981 to 1983 the numbers had grown from 7,543 to 7,935. AMPCO referred to the percentage salary increases 1982 over 1981 which showed executive salaries up in 1982 by 14.8 percent not including non wage components.

AMPCO recalled the words of former Provincial Treasurer Darcy McKeough when he said in 1975 that:

> "Spending restraint will only become truly effective when it becomes contagious. Accordingly, we expect that Hydro, like other government agencies will prune its

> operating and capital budgets. On the operating side, we expect that Hydro will work to achieve a comparable 10 percent administrative cut".

Interest and foreign exchange costs total $823 million for 1983, and is one of the two components accounting for most of the forecasting uncertainties. In fact, according to Hydro, there is only a 50 percent chance of being within $55 million of this amount.

Included in this component are two elements which, in the submission of AMPCO, should be removed because of their effect on revenue requirement: the decision to amortize gains or losses on premature debt retirements; and the policy on foreign exchange. These items increase the revenue requirement by $91 million and $15 million, respectively in 1983.

AMPCO pointed out that a number of points from the Board's report in H.R.10 in regard to the Irradiated Fuel Management charge remain unchanged: the deep rock disposal method has yet to be accepted; the site has not been selected; the year 2000 has not been selected as the in service date; the possibility of the future value of the irradiated fuel has not been determined; escalation and interest are still based on Ontario Hydro's economic forecasts which are by their very nature uncertain; and, the major discrepancy between Board staff and Ontario Hydro concerning the future cost of the Irradiated Fuel Management activities is in excess of $260 billion and no attempt was made this year to resolve that difference.

In regard to the IFM charge and the charge for current service, it was AMPCO's submission that the proposed in service date for the disposal facility should be moved 25 years into the future. This would effectively reduce the revenue requirement in respect to disposal costs of irradiated fuel by $7.6 million.

AMPCO submitted that it was disconcerting to see that the change in accounting for gains and losses on premature debt retirement which was discussed in last year's rate hearing and was said then to have only a $7 million impact on the 1982 revenue requirement, actually had a $90 million impact in 1981 according to the latest audited statements and is expected to have an estimated $91 million impact upon the 1983 revenue requirement. Instead of providing stability, AMPCO argued that it has produced instability of results. While the Board was told last year that the auditors would have been concerned about producing the 1981 accounts without the change, AMPCO submitted that they did not even state in their qualified opinion that they concurred with the change, much less required it to be made. Further, argued AMPCO, it has appeared for some years now that Ontario Hydro had responded to its challenge of accounting policy choices by shopping around for applications of such principles that tend to front-end load its cost onto the present generation of customers while professing to aim at an equitable allocation between present and future generations of customers.

In regard to the policy change for the accounting of foreign exchange, AMPCO pointed out that this is not the first time that the foreign exchange accounting proposal has been before the Board. It referred to the Board's H.R.7 report in 1978 which reported that it "would be premature, when the emphasis has been so heavily upon constraint, for it [Ontario Hydro] to add $30 million [to the revenue requirement] on the basis of a preliminary interpretation of a [Canadian Institute of Chartered Accountants'] ruling". AMPCO recalled that in September 1978, the CICA issued the ruling after a period of 14 months controversy but since February 1979, the date of implementation has been suspended and which CICA ruling, Ontario Hydro's Board of Directors rescinded its decision to follow in April 1979. ACMPCO submitted that Ontario Hydro hopes that by changing its policies as to foreign exchange accounting, it can add $93 million to the total revenue requirement for the three years ending December 31, 1985.

AMPCO submitted that the Board ought not to join Hydro in such speculations and should strongly recommend that the $15 million increase in revenue requirement representing the 1983 portion of the "phased policy change" of $93 million for the three year period be removed from the revenue requirement.

AMPCO stated that Hydro proposed to increase the 1983 revenue requirement by a $32 million provision for fuel channel removal which was not even classified as an accounting change, but which is merely a "refinement" of existing policy as to the definition of "service cost" of depreciable assets. AMPCO argued that Hydro's auditors had no difficulty in rendering an unqualified opinion prior to this decision, and presumably will assent to the accounting presentation, with or without this "refinement", particularly in view of the uncertainty surrounding the ultimate cost and timing of the removal and for that matter, the technology employed in refitting or refabricating.

In regard to the Bruce Heavy Water Plant D, AMPCO submitted that Ontario Hydro proposes to allocate interest and depreciation charges related to the excess heavy water production directly to current operations rather than to heavy water capital. Ontario Hydro has always "painted" these two enterprises as separate and distinct; and AMPCO contended that it was therefore inappropriate and inequitable to change this policy now. AMPCO thus recommended that the Board adopt the recommendation that BHWP D amortization be charged to the heavy water cost centre and that this would reduce the 1983 revenue requirement by $17 million.

In regard to the net income requirement, AMPCO submitted that it is one of the most important matters before the Board and that its determination has assumed added importance for 1983 since the Minister's directive to the Board did not include a specific direction with respect to its determination. This, in AMPCO's submission, made it clear that the Minister had placed this matter directly before the Board for its own independent evaluation and decision.

AMPCO argued that in 1983 Ontario Hydro is seeking a net income of $558 million, which amounts to 15 percent of the net revenue requirement and means that 15 cents of every revenue dollar collected by Ontario Hydro flows directly to the "profit" of the Corporation. It represents an increase of $172 million or 45 percent over the projected 1982 level. Of the $558 million, $183 million by statute is required as debt retirement, with the remaining $375 million to be credited for the stabilization of rates and contingencies -- that is, it is discretionary on the part of Ontario Hydro. The increase in net income amounts to more than 40 percent of the total rate increase of $444 million. Given the considerable impact of these figures, AMPCO submitted that it is absolutely critical that careful and thoughtful consideration be given by the Board to the determination of the net income requirement. Ontario Hydro's financial strength must be tempered by economic reality, and its real need for the level of net income requested must be demonstrated, which has not been done in the present case, AMPCO said.

Ontario Hydro's net income proposal has been based on two "narrow measures" -- the interest coverage ratio and the debt equity ratio. AMPCO did not believe net income should be determined by these alone, and submitted that the Board must distinguish between measures used in the past and measures which are truly good indicators of financial health and well being. It argued that the interest coverage ratio and the debt equity ratio as calculated and utilized by Ontario Hydro have serious flaws and should be rejected by the Board, to be replaced by other measures which more closely relate to Ontario Hydro's true financial position.

For 1983, Ontario Hydro proposes to increase its interest coverage ratio from 1.23 times gross interest to 1.275 times gross interest -- the effect of which is to add approximately $92 million to the net income requirement, AMPCO submitted; and added that by such increase in the interest coverage ratio, the debt equity ratio for Ontario Hydro would be reduced from .839 in 1982 to .836 by the end of 1983. It argued that the justification offered by Ontario Hydro for seeking this level of net income was weak since Mr. Burdette was unable to provide any evidence whatsoever that keeping the interest coverage ratio at its present level of 1.23, or even lowering it, would create any financial hardship or burden for Ontario Hydro that might undermine its financial strength. AMPCO argued that recent extraordinary write offs of one quarter billion dollars which have served to increase the debt ratio, have not attracted any special comment from Ontario Hydro's investment advisers in Ontario or New York.

Moreover, AMPCO referred to Mr. Genest's comment during the hearing to point out that it is the underlying credit worthiness of the Province as a whole which determines the terms on which a provincially owned utility can borrow. AMPCO submitted that on the basis of this alone, the excessive reliance which Ontario Hydro places on the levels of these two ratios seems to be unfounded.

AMPCO argued that to the extent that the interest coverage ratio is used in the determination of the net income amount, it should be based on net interest expense rather than gross interest which would still see the present users of the system providing a net income of sufficient size to provide assurance to bond holders that interest payments are adequately protected. AMPCO pointed out that in contrast to the present calculation, it would not require the present users of the system to provide a margin of safety for costs which will be charged to future users of the system and not expensed against current income. AMPCO argued that in this way, the rate proposal of calculating the interest coverage ratio violates the inherent user pay principle of Hydro's rates and places a tremendous burden on the existing ratepayers.

AMPCO argued further that the present calculation of the debt equity ratio fails to recognize certain inherent aspects of the system such as the "overly narrow" definition of equity and the failure to include items such as unamortized redemption premiums from premature debt retirement, both of which have the effect of artificially increasing the debt ratio. AMPCO submitted that Hydro should not be seeking exaggerated levels of net income in order to reduce the debt equity ratio at the same time as it unnecessarily increases that ratio by means of its accounting practices. AMPCO recommended that the Board should encourage Hydro to present full and complete information with respect to the return on rate base and return on equity as presented by other utilities fully under the Board's regulation. AMPCO submitted that with this information at its disposal, the Board would be in a position to evaluate Ontario Hydro's net income requirement thoroughly and completely.

In the conclusion of its argument on revenue requirement, AMPCO submitted that the Board is faced with a clear question of whether 1983 is an appropriate year to increase the level of net income by 45 percent. It recommended to the Board that the level of net income be set so as to maintain the 1982 interest coverage ratio and therefore reduce the revenue requirement by approximately $92 million. It also recommended that the Board should encourage the Province to give its highest priority to the rapid completion of the net income/credit worthiness study which has been underway for some time but that before finalization, any draft recommendations should be circulated for public comment and discussion so that the views of all sectors can be heard.

In its final submission on costing and rates, AMPCO addressed a number of issues.

With respect to Ontario Hydro's proposal to establish a demand/energy split of 37 percent demand, 63 percent energy (the present system of costing involves a demand/energy split of 53 percent demand and 47 percent energy), AMPCO contrasted these figures to the resultant demand energy split under the NARUC approach (62 percent demand and 38 percent energy). It was AMPCO's position that Ontario Hydro failed entirely to justify this shift in the demand/energy split.

AMPCO contended that Hydro's proposal does not meet the objectives of fairness and engineering efficiency, and that the increased emphasis on energy will not stimulate any greater efficiency levels. It was AMPCO's position that the demand/energy split should be determined on the basis of classifying fixed and variable costs according to the NARUC approach.

AMPCO submitted that the composite peaking plant (CPP) methodology is badly flawed and ill conceived. It argued that the designation of peaking plants is contrived since CPP includes almost 20 percent of dependable hydraulic generating plants and over 95 percent of primary fossil generating capacity; and also that the CPP concept is arbitrary because it classifies fixed costs as energy on the basis that the plant investment has been made to save energy. It submitted that CPP is unrealistic in this respect. It submitted that evidence adduced by itself and others had demonstrated that CPP is a form of marginal cost pricing which had been rejected by the Board in H.R.5. AMPCO urged the Board to reject CPP and to recommend instead that Hydro classify costs by the fixed variable method. It also argued that the preponderance of electric utilities continue to apply the fixed variable approach as confirmed by numerous EPRI studies. It recommended that in general, fixed costs be classified to demand and variable costs be classified to energy, but subject to certain adjustments as reflected in Hydro's response to AMPCO Interrogatory A6.2.

In regard to the thesis that high capital cost plants have been put into place to save energy, predicated upon meeting projected maximum demand with an adequate reserve margin, AMPCO noted that the system expansion plan has been outside the jurisdiction of the Board. AMPCO argued that no evidence was presented by Ontario Hydro to support such a theory and submitted that it is fallacious to assert that Ontario Hydro is adding capacity to achieve energy savings. It argued that to the contrary, Ontario Hydro's present system expansion plan is based on a number of different factors ranging from a desire to cut back in acid gas emissions to a desire to stimulate the Provincial economy through the BILD program.

In regard to excess capacity, AMPCO pointed out that Ontario Hydro proposes to define "customer capacity" as the forecast primary peak demand plus a 25 percent mark up for reserve, and that installed capacity over and above this amount is defined as "excess capacity", with the cost of such capacity established by valuing it at the average unit cost of all generating plant. AMPCO submitted that it is inappropriate to cost excess capacity in the fashion proposed; and recommended that excess capacity be determined and costed by examining the actual plants which are mothballed or dedicated to export. It submitted that the costs of excess capacity be identified as the accounting costs of Hearn, Lennox and Keith generating stations; and that the excess capacity costs be classified to demand and energy prorata.

AMPCO recommended that both demand and energy charges to bulk power customers and large users served by the municipal utilities be time-differentiated starting in 1983 and that non common costs be allocated as proposed. It also recommended a six month seasonal differential. Since September is a month of low demand, AMPCO recommended it be part of the summer season. It recommended that on peak hours be from 0700 to 2300 hours on week days, excluding statutory holidays; and off peak hours comprise the balance of the hours each month, as proposed. It also recommended that the rating periods be adopted for a five year period commencing January 1983.

AMPCO took the position that energy related costs be assigned to periods using the procedure for determining exclusively energy related costs. It submitted that energy costs be allocated to rating periods according to the forecast of energy production provided by the Consistent Energy Set. AMPCO also favoured diurnal energy rates for 1983 although Hydro had not proposed these, despite the fact that with some minor exceptions, the metering equipment is now in place. AMPCO submitted that the requisite metering should be expedited for 1983.

AMPCO recommended that demand costs be allocated to on peak hours and also that they be seasonally differentiated in the manner proposed by Ontario Hydro. In AMPCO's submission, it was the best proposal before the Board for assigning demand costs to rating periods.

In regard to customer classification, AMPCO was in favour of retaining the Power District and recommended that Hydro's proposal be adopted at least through 1983.

It recommended that Hydro proceed with its proposal to review customer classification with its bulk power customers, in a manner which will ensure maximum customer input, and that meanwhile, costs be allocated to the direct customer class via the Power District as proposed by Hydro, in order that direct customers may share in diversity benefits like all other end use customers.

AMPCO supported Ontario Hydro's proposals in respect of direct customer firm power rates but recommended consideration of a Wright Rate form for customers with a low load factor. In addition, AMPCO noted its support of the proposed 60 minute demand billing interval.

It argued that interruptible customers are supplied out of the reserve for firm power and this benefits Ontario Hydro, even if no cuts occur, because no capacity need be built to serve interruptible customers. It also submitted that the present capacity interruptible proposal places an inequitable share of the cost of excess capacity on interruptible customers. It recommended that Ontario Hydro's proposal be adopted to supplant Interruptible A and B with Capacity Interruptible power; and that Hydro provide a higher fixed discount for Capacity Interruptible power in lieu of its rebate scheme.

In regard to the evidence from Mr. Palmer and Miss Chown about some jurisdictions in the United States which have moved from the fixed variable system of classifying costs, AMPCO submitted that they both failed to draw properly any meaningful comparison to the Ontario Hydro system.

AMPCO submitted that the issue of the economic impact had not been adequately dealt with by Ontario Hydro and that many important questions have been left unanswered; and that its impact analysis failed to analyze the differing impact on industries depending on their relative rate increases. It was submitted that the rate increase, if approved will: undermine the competitiveness of Ontario industry; encourage shifts of production out of Ontario; undermine investor confidence; channel investment opportunity away from Ontario due to the contrived nature of the proposal; and result in the loss of badly needed jobs.

ENERGY PROBE

Energy Probe addressed its continuing concern with the "nature, impact and extent of Ontario Hydro's expenditures in the field of public relations". Its counsel argued that Hydro's public relations activities had far exceeded its legitimate role of communicating with its customers and other "publics" and represented an "untoward interference in the democratic process by a Crown Corporation". Energy Probe urged the Board to "exercise its authority to recommend a reduction in these expenditures and a corresponding reduction in revenue requirement and rates."

In regard to the study, Ontario Hydro Public Relations Expenditures April 1982, Energy Probe argued that it satisfied none of the Board's criteria outlined in H.R.10, that the author (Woods Gordon) is not an independent authority and the report itself is not a suitable evaluation or audit addressing the Board's expectation that "Ontario Hydro...should fully justify its level of public relations expenditures, preferably by an evaluation or audit by independent authorities".

In regard to the author being an authority, Energy Probe cited the report's Executive Summary which recognized at the outset that Woods Gordon's scope of practice does not include public relations activities. Energy Probe pointed out that an authority on public relations would recognize "image advertising" in the product even if the stated purpose were otherwise and that having seen the product for what it is, would then be in a position to judge whether or not the product addressed "the legitimate information needs of the public".

Energy Probe submitted that the ongoing relationship between the author of this report and Ontario Hydro, as well as the way in which the assignment was given and carried out, raises at least the appearance of lack of independence and the value of the report for the purposes of this Board is therefore diminished.

Energy probe recommended that the Board retain its own, "truly independent" consultant to do the analysis which Energy Probe contended that Hydro and Woods Gordon could not or would not do.

Energy Probe's participation in the second phase of this hearing was restricted to the extent to which the proposed rates fail to meet the stated rate making objectives of Ontario Hydro.

It submitted that to be fair and to track costs, the energy charge levied when a customer creates a given load must equal the additional cost the system incurs, otherwise (except at the customer's peak time, when the demand charge comes into play) the customer is in a position to obtain energy below Ontario Hydro's cost, forcing additional costs onto Hydro's other customers to make up the shortfall. This situation, which would exist under the proposed 1983 rates for municipal utilities in both seasons and for direct customers primarily in the summer season, fails in Energy Probe's opinion to meet the objective of fairness.

This same deviation of charge from cost interferes with the pursuit of efficiency in that any reduction in the cost of energy equals a reduced incentive to conserve.

When cost minimization is considered, this deviation of charge from cost becomes insupportable as any reduction of the energy charge reduces the incentive for customers to conserve increasing the demand for generation of electricity from expensive fuels.

In order to minimize these effects, Energy Probe submitted that Ontario Hydro should increase its proposed energy charges for municipal utilities in winter, by approximately 8 percent of presently proposed rates;

for municipal utilities in summer, by approximately 23 percent of presently proposed rates; and for direct customers in summer, by approximately 18 percent of presently proposed rates.

The effect of this recommendation is to eliminate approximately two thirds of the three significant peak-period shortfalls of charge versus cost. This two thirds compromise is necessary in order to minimize the peak-period shortfall without creating an undue surplus in off peak periods.

Energy Probe submitted that the Board should also recommend that Ontario Hydro, in its rate proposal for 1984, set each of the four energy charges for each customer class at or slightly above the corresponding domestic incremental delivered energy costs for that period and that customer class.

As well, the Board should recommend that Ontario Hydro revise its demand charges downward for 1983 and 1984 sufficiently to accomplish these objectives, in light of an increase in projected revenue from the increased energy charges proposed.

LASCO & IVASCO

With respect to Ontario Hydro's proposed costing and pricing principles, Lake Ontario Steel Company Limited (LASCO) and Ivaco Inc. (IVACO), two direct customers of Ontario Hydro that operate electric arc furnaces used for steelmaking, supported Hydro's proposal to lengthen the time interval of demand measurement for large customers and asked the Board to recommend its adoption.

They submitted that the demand of electric furnace customers on the system is random and intermittent, as even at full operation they do not achieve more than a 50 percent load factor. LASCO and IVACO pointed out that even when their activity is highest, they still maintain low load factors because of the intermittent nature of the process. As a result, they said that electric furnace customers contribute diversity to Hydro's system, which should continue to be recognized in the demand rate structure.

In addition, LASCO and IVACO noted that Hydro had recognized the characteristics of the demands of electric furnace customers in the Electric Furnace Rate, which in effect, levied demand charges on the basis of customer load factor, and did not result in the application of the full demand charge until the customer's load factor reached about 70 percent.

LASCO and IVACO noted that at the Hearing into Bulk Power Rates for 1977, Ontario Hydro proposed to phase the Electric Furnace Rate up to the regular rate over three years, but the Board had extended the phase out in order to allow the Costing and Pricing Hearing to make its report and for new rates to be in place.

LASCO and IVACO submitted that the electric furnace customers believe that the proposed lengthening of the time interval of demand measurement does provide some considerable improvement in the fairness of the treatment of their power demands under both the present and proposed standard demand rate structures. They argued that even in the worst cases, the one hour measurement will include periods when the furnace load is off as well as periods when the furnace load will be at its maximum; and that at the very worst, the one hour interval will show an average demand during that one hour which is somewhat lower than the highest 15 minute demand in the same hour.

OFA

It is the submission of the Ontario Federation of Agriculture (OFA) that a proportion of the December expenditures are not related to any level of activity but are merely expenditures made to reach a forecast budget and thus prevent any erosion of that budget in future years. Therefore, these amounts should not be included in any revenue requirement and Ontario Hydro should implement some method of preventing this occurring again.

In regard to the debt/equity ratio and the interest coverage ratio, the OFA argued that any increase in the financial strength of Ontario Hydro will be at the expense of a decrease in the financial strength of its customers and should therefore be discouraged.

The OFA submitted that it be awarded costs as it would encourage meaningful interventions from the public rather than merely a hearing of Ontario Hydro and its customers as defined in Section 37 of the Act.

OFA submitted that it participated in this hearing to ensure that the interests of its over 25,000 members were represented before the Board, as well as to ensure that a large segment of the public was represented in contrast to the direct industrial users and the municipal public utility commissions which OFA contended do not have a similar constituency.

Due to the insufficiency of easily understandable evidence, OFA submitted that the proposed cost allocation and the resulting rate structure be rejected in favour of the status quo until such time as Ontario Hydro files a complete cost allocation study, which is to include the empirical evidence justifying the chosen cost allocation and demonstrating the possible impacts of choosing various alternative cost allocations.

While it has no quarrel with the principle that every user must bear his fair share of the costs, OFA argued that there are problems with respect to the question of fairness and the proof of cost causality and the allocation of various cost components. It submitted that the calculation of the Rural Residential Rate Assistance be modified such that no costs are recovered from the customers receiving the subsidy.

In regard to Hydro's proposal to allocate specific low voltage lines to the rural retail system, OFA expressed concern that there does not appear to have been any change in these facilities or their use to justify such a change. OFA pointed out that as Ontario Hydro confirmed that these have not changed in the recent past, the Board should not accept the reasons for the proposed change but should recommend the cost allocation status quo until Ontario Hydro is able to demonstrate scientifically that this proposed change is a better tracking of costs.

With respect to Ontario Hydro's allocation of 500 KV Transmission Lines as common costs, OFA argued that with "the exception of the so called backbone of the transmission grid system in Ontario", these lines usually originate at a generating station and have as a destination, a major municipal load. It submitted that even though all consumption is considered new consumption by the Board, a particular class of customer may be increasing demand at a significantly greater rate and in a greater absolute amount such that if the class had not been exhibiting such increasing demand, certain Ontario Hydro facilities would not have been built or upgraded and the costs would not have been incurred. OFA noted that although the percentage increase is approximately the same for each customer class, the absolute figures are quite different, noting that the farm increase was 1.9 percent of the total increase in demand.

OFA submitted that the proposed rate structure leads to an average 19.4 percent increase in the power district rural rates while the average rate increase for all customer is 13.9 percent. It submitted that farmers, commercial operators and seasonal users are faced with an average rate increase of 19.4 percent since rural rate assistance does not apply to other than rural non-seasonal residential customers.

ONGA

ONGA submitted that, in light of the size and importance of Hydro's capital spending and in light of the significant growth and the demonstrated effect of that program on Hydro's rates, the restriction placed in regard to investigation of that capital spending is no longer appropriate. ONGA further submitted that, as a result of existing legislation, Hydro can and had rejected the recommendations of this Board in the implementation of its rates. ONGA submitted that the Board recommend in its report a change in the legislation so as to make Hydro a regulated utility answerable not just to itself but to this Board, the Ministry, and ultimately to the people of Ontario.

ONGA also expressed its concern with respect to the Board's inability and therefore the public's inability to review the principles implied in the retail rate setting process. For that reason, ONGA submitted that the Board recommend in its report the establishment of a methodology whereby a full and complete inquiry can be made into both the bulk power rates and the retail rates.

ONGA submitted that as electric space heating is an increasing component of demand, it tends to increase the costs that all electricity customers must bear. ONGA pointed out that the evidence was also clear that Hydro is now engaged in many programs that are supportive of increased use of electrical heat. There are therefore significant policy contradictions in Hydro's approach. It argued that first, there is a conflict between the goal of minimizing costs for all customers and Hydro's programs supportive of electric heating. ONGA also argued that since electric heat is principally sourced in fossil fuels, there is no merit in promoting electric heat as a measure to conserve other fossil fuels; nor is there any merit in encouraging additional demands, such as air conditioning, to balance electric heat. For that reason, it was ONGA's opinion that there is a conflict between electric space heating and Hydro's stated goal of conservation. Electric space heat sourced in fossil fuels is also in conflict with Ontario's policy of trying to reduce its output of acid gas emissions. Electric heat will also result in an increase in peak demand. ONGA submitted that therefore the program is in conflict with Hydro's attempt to lower overall system costs by the implementation of load management, time-of-use rates, and other such programs designed to reduce the peak requirement, and that such programs are therefore not in the public interest.

With respect to the decommissioning of nuclear stations, ONGA supported the ultimate dismantlement of nuclear plants, characterized as "option one" in the evidence, so as to more closely match costs and revenues.
It was ONGA's submission that the implementation of "option one" amortizes the cost of the facilities over their forecasted useful life.

In regard to secondary revenue, it was ONGA's submission that the Board and the public need to be assured that capital costs are not being incurred in order to maintain or increase an ability to export without proper allocation of those costs between the domestic and export customers. For that reason, ONGA recommended that Hydro be required to provide evidence in subsequent hearings that its capital construction program does not include a maintenance of excess surplus capacity for the purpose of supporting export sales. It was ONGA's further recommendation that the 1983 secondary revenue estimate be reduced by $11.7 million as a result of insupportable assumptions made by Hydro with respect to the estimate of world oil prices for 1982-1983.

In general, ONGA supported the economic outlook presented by Hydro. The only qualification taken to that outlook was that the Canadian dollar, in view of recent events, will be at a significantly lower value vis-a-vis the United States dollar than that projected in Ontario Hydro's evidence; and ONGA therefore recommended that Hydro's estimate of its revenue requirement be allowed to rise by $56.3 million.

ONGA submitted that although the financial soundness of Hydro is measured in terms of its interest coverage ratio and its debt to equity ratio in any one year, Ontario Hydro has consistently failed to meet those measures of financial soundness.

ONGA also pointed out that Hydro does not carry any business loss insurance to offset the risk of its dependency on nuclear generation or, for that matter, the other two generation processes.

ONGA therefore recommended that the Board, in advance of the next hearing, require Hydro to set a firm interest coverage target in consultation with the Province of Ontario in order to ensure that Hydro does not jeopardize the financial soundness of the Province. ONGA further recommended that the Board require Hydro to use the target so obtained as a basis for the determination of its future net income requirements.

ONGA urged the Board to recommend in its report the establishment of a methodology whereby a full and complete inquiry can be made into both the bulk power rates and the end use rates. ONGA argued that the encouragement of the use of electric heat is inconsistent with Hydro's objectives as shown in its rate submission and will detract from the purpose of time-of-use rates by causing not a decrease, but an increase in peak demand.

It was ONGA's submission that the Board, the intervenors, and ultimately the public, were prevented from a complete analysis of the electrical needs of the people of Ontario and Hydro's ability to meet those needs. The public should be entitled to upgraded and updated information as it becomes available; and ONGA argued that wihout that information and without the ability to examine the principles implied in the retail rate setting process, it will be impossible in the future for this Board or anyone else to ascertain whether or not Hydro has achieved its objectives.

ONGA submitted that a differential in seasonal costs of service has been well established and can be readily implemented at both the bulk and end use stages, but that diurnal differentiation should await the results of the further studies now under way.

ONGA submitted that in light of the evidence adduced during this hearing, an inquiry into the retail rates is a reasonable step following the implementation of time-of-use rates.

ONGA stated that Hydro's proposal for time varied rates was intended to achieve two goals: to charge each customer his fair share of the system's costs; and to encourage patterns of use and growth that, over time, would minimize costs for all customers. ONGA submitted that Hydro's programs supportive of electric space heating are clearly in conflict with that goal, and that encouragement of the use of electricity for space heat is at variance with the goal of minimizing costs to all customers. ONGA contended that Hydro is attempting by the introduction of time-of-use rates to encourage a change in the load shape which will permit reductions in required capacity and a more efficient use of plant. ONGA submitted that Hydro's program with respect to electric space heat is, however, in conflict with its attempt to lower over all system costs by the implementation of load management, time-of-use rates, and other programs designed to reduce the peak requirement.

ONGA therefore recommended that the Board require Ontario Hydro to review its programs that are supportive of electrical space heat and report to the Board as to how such programs impact on the other aims of the Corporation, and in particular, the effect of electric heat on its programs designed to reduce the peak requirement.

Subject to the reservations which it had expressed, ONGA submitted that Ontario Hydro has on balance, made a proposal in this case sufficiently strong to warrant the early introduction of time-differentiated rates.

OMEA

OMEA's general position was that the time has come for Ontario Hydro to "tighten its belt". It should do so for two major reasons. First, Hydro has, in recent years, grown quickly by adding large numbers of staff and acquiring or constructing significant new assets. OMEA believed that major inefficiencies are a common side effect of prolonged and sustained growth periods and it therefore submitted that Hydro would be well advised to pause and to conduct a major reassessment of its effectiveness and efficiency. It submitted that this is a most appropriate time for Hydro to begin conducting this reassessment since the Corporation is particularly well positioned to meet the demands expected to be placed on it through to the end of the decade.

Second, OMEA submitted that present economic conditions may be the worst the country has faced since the Depression. OMEA argued that Hydro has a responsibility to act as a leader by maintaining its rate increase below the rate of inflation because as a large, respected and visible public corporation owned by the people of Ontario, it has a special obligation to mitigate the effects of inflation. OMEA believed that the rate increase for 1983 can be responsibly limited to 7.0 percent without affecting the Corporation's financial soundness.

OMEA focused on three major issues relating to the economic forecasts: the information conveyed with the forecasts, the predictions themselves and the impact the current economic climate should have on Ontario Hydro's traditional "conservative" long term planning approach.

OMEA submitted that at a time of great economic uncertainty, the task of the Economics Division is a very difficult one as it must convey to decision makers not only its forecasts of the future but also its sense of the range of uncertainty that surrounds the forecast; and that despite recent improvements in reporting, there are still major shortcomings in the information being provided. It submitted that at least five improvements are required: first, tighter confidence ranges than the 90 percent ranges now provided are required to permit a user to know how he can rely on the forecasts; second, the Division must show explicitly the qualitative adjustments it makes to model predictions perhaps in the same way as unallocated loads are exhibited for load forecasts; third, when the Division presents alternate scenarios, they all must be outlined together in a comparable fashion; and fourth, especially at a time when monetary authorities are playing a leading role in economic management, numerical data on U.S. and Canadian money supply must be included with each forecast.

Finally, OMEA submitted that Hydro's Economics Division must provide and explain the interrelationships which it believes exist among the individual variables in the main forecast, arguing that information about the sensitivity of Hydro's net income to changes in economic variables is essentially meaningless without an understanding of the covariation among key variables.

OMEA argued that the Chase Econometrics forecasts are significantly more realistic than Ontario Hydro's October Economic Outlook or its March update, particularly in view of the continuing success that the United States has had in reducing its inflation rate and the recent downward trend in the growth of Canadian inflation. It submitted that the more realistic Chase figures reduce the 1983 revenue requirement by $31.2 million. Finally, the OMEA argued that it is widely acknowledged that it is now a period of greater economic uncertainty than at any other time in the post-war era; and that in response to this increase in uncertainty, Hydro should follow the practice of prudent financial and industrial institutions by moving to reduce risk by shifting, where possible, to shorter term commitments.

OMEA proposed that the load forecast be updated to incorporate the latest changes expected. First, Ontario Hydro's most recent economic forecasts foresee a lower price of oil than that originally used in the model. OMEA submitted that when the updated price of oil is incorporated, the load forecast will increase by 2.7 percent, translating into a $32.8 million reduction in the revenue requirement. Second, OMEA submitted that the original run of the model used an average price of electricity over the year rather than incorporating the effects of the proposed time-of-use rates. Since the price of electricity is one of the determinants of electricity demand, the proposed seasonal rates would be expected to cause a reduction in demand in the winter (electricity is expected to be more expensive then than the average price) and an increase in demand in the summer (electricity is expected to be less expensive then than the average price). It submitted that incorporating these changes into the load forecast would lead to a reduction in the revenue requirement of $2.1 million.

OMEA examined carefully the various programs contributing to energy variable costs. It concluded that the production forecasts of nuclear energy are significantly understated; heavy water inventories are excessive; the NPD facility is not required; commissioning energy is priced too high; and both power purchases and secondary sales have been underestimated. The total impact of changes recommended by OMEA reduce the revenue requirement by nearly $83 million.

It submitted that over the last five years, Hydro underestimated the output from its large nuclear generation stations consistently and by a margin of 18,356 GW.h. OMEA believed that the forecast production at Bruce could be increased by at least 613 GW.h -- the midpoint of 1980 and 1981 production levels -- saving $13.3 million in energy variable costs.

OMEA argued that the evidence showed that Hydro's current heavy water production program will double inventories over the decade and that such inventories are far in excess of reasonable needs and should not be allowed to develop. It submitted that for 1983, only half the forecast production of heavy water is required, and that by reducing this by 796 Mg., a saving of $24 million on the revenue requirement would result.

The NPD station at Rolphton -- the smallest and oldest operating reactor in the Ontario Hydro system -- was essential in the development of the Canadian nuclear program. It was, until recently, critical to the Hydro nuclear training program. However, OMEA argued that today the station is not essential as a demonstration or training facility and that while it is useful for some experimental work, its main feature is its high cost -- which for 1983 is over twice as expensive as a coal station and over fifteen times as expensive as a nuclear station. OMEA argued that it is time to retire the station and that by taking immediate steps to cancel the agreement with AECL, $4.7 million would be saved on the revenue requirement.

OMEA also pointed out that commissioning energy is currently priced at a level that is presumed to approximate the cost of the energy displaced elsewhere in the system and that the "revenue" attributed to commissioning is then used to reduce the capital cost of the station. OMEA argued that the effect of this policy is to charge current users more for the cost of energy from the station than future users. It pointed out that Hydro's argument that commissioning energy displaces coal produced energy could as easily be made for pricing all nuclear energy at the cost of the coal fired energy it displaces. It submitted that pricing nuclear commissioning energy at nuclear prices will reduce the revenue requirement by $19 million.

OMEA submitted that in all past rate submissions but one, Hydro underestimated power purchases; and that in the case of purchases from Quebec, forecast errors have, in recent years, reached 86 percent. Despite this trend, Hydro is forecasting a reduction in power purchases in 1983; and OMEA submitted that a more appropriate forecast of power purchases would be the actual purchases for the most recent year, unless persuasive reasons for a decline can be given. OMEA argued that additional purchases of 944 GW.h from Quebec and 242 GW.h from Manitoba are reasonable, thereby reducing the revenue requirement $11.8 million.

It submitted that the same pattern of underestimation of factors that reduce the revenue requirement continues with secondary sales. Specifically, Ontario Hydro has made no adjustment in its estimate of purchases by Niagara-Mohawk despite the fact that that utility recently lost the supply from a nuclear plant. Instead, forecast sales to Niagara-Mohawk for 1982-1983 continue at the same level as was achieved in 1981-1982 when the unit was in service. Additional secondary sales should reach at least 210 GW.h, thereby reducing the revenue requirement $9.7 million.

OMEA was deeply concerned that Hydro is planning to expand OM&A costs by $283 million or 38 percent, in just two years. OMEA argued that such action would undermine the confidence that the public places in Ontario Hydro.

OMEA's position from the outset of this hearing was that Hydro's sheer size and complexity precluded any thorough analysis of the literally hundreds of OM&A and capital programs. This position, which OMEA argued was supported by Hydro, dictated the approach that OMEA takes in its argument -- which was to examine in detail some of the more important management systems that Hydro uses and subsequently to draw some inferences on the overall reasonableness of the OM&A and capital budgets. OMEA concluded that severe flaws exist in these systems and therefore believed that this Board has a duty to recommend dramatic action in the form of a real budget cut accompanied by an independent operational audit of the organization.

OMEA examined four specific management systems: OOOH, operational audits, compensation systems, and the approval and post appraisal of capital expenditures.

OMEA's examination of OOOH left it with grave concerns. It was of the opinion that OOOH is too complicated to be useful to Ontario Hydro's management, especially at middle and lower levels. OMEA was also concerned that OOOH may fail in the near future despite the considerable efforts of the Corporation's senior management, and in doing so may bring forth management resentments toward important associated systems. It argued that Hydro should urgently strive to simplify OOOH so that it can be used by the Corporation's operating management.

OMEA also examined Ontario Hydro's operational audit system and emerged with five concerns:

- openness is lacking, which limits the credibility of the system with the public;
- the heavy reliance on the managers for input to the audits cast severe doubts on their effectiveness;
- Ontario Hydro's staffing of audits with "fast track" managers slated for promotion to the line organization guarantees little in terms of objectivity of the audit;
- organizational "politics" may substantially reduce the effectiveness of internal audits as both the manager who is being audited and the one performing the audit have every incentive to "keep the peace";
- Ontario Hydro's statements to the effect that operational auditors are the only people who look at the

management systems coupled with the fact that the unit is audited every five or six years, left OMEA extremely uneasy about the level of overall control on the organization's middle management in the intervening time.

As a result of these concerns, OMEA concluded that summary information on Hydro's operational audits should be made available for public scrutiny; Hydro should develop specific expertise in operational audit techniques; and internal audit teams should include experts in the areas being audited.

OMEA's examination of Ontario Hydro's salary levels left it with concerns about the appropriateness of the Corporation's upper quartile pay policy for its engineers and of the use of the Hay system. It submitted that as one of Ontario's largest employer of engineers, Hydro's upper quartile policy may simply have the effect of putting continuous upward pressure on the provincial engineering salary scale and further, that an upper quartile pay policy was entirely inappropriate unless it was coupled with demands by the Corporation for upper quartile performance. OMEA argued that, in using the Hay system, Hydro could be thinking that it pays its managers average salaries while it may well be paying them salaries well above a North American or Canadian average. It submitted that a more serious problem revolves around the management incentives that are created by the use of Hay points to determine salary levels. It argued that because Hay points are awarded on the basis of budget size, among other factors, the incentive to add staff and spend money may be overwhelming in a non profit organization such as Ontario Hydro. As a result of these concerns, OMEA believed that Hydro should consider revising its compensation policies beginning with its policy for paying engineers in the upper quartile; and second, that it should revise its executive salary system to provide the appropriate blend of incentives for its managers.

OMEA also examined the Corporation's capital budgeting approval and post appraisal systems. OMEA argued that the systems used to approve capital expenditures at Ontario Hydro are wanting. It analyzed three capital budget documents supplied by Hydro to test the Corporation's post appraisal system of capital projects. OMEA concluded that these examples illustrate a basic and serious flaw in the system, namely, that there is no ultimate check on whether any particular expenditure was actually worthwhile. OMEA considered it a matter of priority that these weaknesses be corrected.

OMEA concluded from its analysis of management systems that major deficiencies exist in the Corporation's control systems. OMEA argued that a simple, cursory look at Hydro's work program budgets show a substantial majority of them growing in real terms over the next two years despite the substantial efforts expended by the Corporation's senior managers and despite the plethora of systems. It submitted that the situtation demands drastic action by the Board. OMEA pointed out that the Board should reject Ontario Hydro's claims of efficiency and effectiveness; and that it should appoint an independent consultant to assess the effectiveness of Hydro's operational audit system and to audit a limited selection of branches, department, operation or management systems as chosen by the Board. OMEA further argued that, in the meantime, the Board should recommend a $50 million cut in the OM&A budget and a freeze in 1983 on the Corporation's capital budget programs not related to already-approved system expansions, and regulatory and safety issues; and that savings in borrowings from this freeze should be left with the Corporation to improve the debt ratio.

OMEA was concerned that Ontario Hydro's debt is excessively biased toward the long end of the maturity spectrum amd argued that in a time of high interest rates and unusually high economic uncertainty, the bias is inappropriate. It submitted that the Board should recommend that Hydro should shift, whenever possible, toward intermediate term debt, at least until the current period of exceptional economic uncertainty has ended. As well, OMEA was not satisfied that the model used to determine capital availability is adequate; and submitted that separate models are needed to identify demand and supply conditions of capital markets.

It pointed out that the rate submission states that net income is subject to swings of ± $60 million at a 50 percent probability level. OMEA argued, however, that the uncertainties in the economic assumptions and the consequent sensitivities outlined in the Financial Forecast indicate that, in fact, the variability of net income at a 50 percent probability level is considerably higher than $60 million.

OMEA submitted that the Board should recommend that work on the sensitivity analysis should be continued and documented in greater detail.

It submitted that over the years, Hydro has been able to predict its net income within a very narrow range. OMEA believed that this accurate forecast outcome under uncertainty results from over budgeting and then spending to meet the target. It argued that "ultimately, costs are more manageable than Ontario Hydro would like us all to believe", and submitted that the Board should recommend that the necessary economic modelling be performed and documented.

It submitted that with such a high rate increase, it would have been easy for OMEA to challenge Hydro's intention to improve slightly its debt ratio but pointed out that OMEA believes that such a position would be wrong and shortsighted. It argued that it would be inappropriate while the Government is reviewing the financial targets, as well as being poor financial policy while interest rates are high and capital markets are tight; and wrong while considerable excess capacity exists.

OMEA argued that Ontario Hydro's revenue requirement can be reduced by $230 million without jeopardizing the reliability and efficiency of the system and without impairing the Corporation's financial soundness. The reduction comes in two parts.

It submitted that $198.6 million can be deducted by following OMEA's recommendations and that these cuts reduce the rate increase to an average of 8.0 percent instead of the 14.5 percent contained in the submission. As a result of this reduction in the rate increase, OMEA submitted that the load forecast would be expected to increase by approximately 2.6 percent, reducing the revenue requirement by a further $31.2 million.

In conclusion, OMEA submitted that the total impact of its program of "realistic forecasts and responsible restraint" would be a rate increase of about 7.0 percent in 1983.

In introducing its argument with respect to Hydro's proposed costing and pricing principles, OMEA noted that the proposal before the Board at this time is the culmination of some 16 years of assessment and that enough information is available to take some important steps forward in regard to rate setting. While it submitted that some proposals move too far altered, it recommended changes with respect to dropping the equity charge on non common costs; allocating demand charges uniformly to rating periods; fixing the demand/energy split for five years; and allowing customers a suitable period of time for implementation.

OMEA pointed out that the Board must reject Hydro's proposal to retain the current customer classification because it is inferior to the Board's own recommendation in H.R.5. It submitted that as a matter of law and equity, the Board must not reverse its previous recommendation since Hydro failed to produce any significant new evidence whatsoever to justify its current position.

OMEA submitted that the allocation of net income to non common assets is overstated because those assets are fundamentally of a lower "risk" class than common assets, and should therefore be charged a commensurately lower gross rate of return. OMEA therefore recommended that the Board should reject the use of a uniform gross rate of return to allocate net income to common, non common and rural distribution assets. OMEA also recommended that the Board should recommend that Hydro's allocation process continue to allow the municipal utility system to subsidize municipal utilities that are unfairly burdened by specific facility charges associated with changes in common/non common boundaries.

With respect to the derivation of the demand/energy split, OMEA pointed out that the exact dividing line between these two aspects of costs continues to be a controversial and highly judgmental part of rate making. However, OMEA believed that the 39/61 demand/energy split should be accepted and fixed in place for the next five years because it believed that a greater emphasis on energy is appropriate at this time and consistent with the other changes being proposed.

The proposed split is acceptable to OMEA because more costs should be recovered through the energy charge and a greater emphasis on energy charges is warranted because it more closely reflects the reason capacity costs are being incurred for the next ten years. As well, the time-of-use proposal lessens the need for a higher demand charge; and finally, charging peak users the cost of excess capacity would be inequitable and conceptually incorrect since usage at the peak is not the cause of capacity additions. OMEA therefore urged the Board to recommend that Hydro's proposed demand/energy split of 39/61 be adopted.

In determining the rating periods for seasonal rates, OMEA pointed out that such rates are appropriate for bulk power customers. OMEA argued that September is appropriately placed in the winter period, because costs are the most appropriate basis for selecting rating periods; and September's incremental energy costs more closely resemble the costs of energy in the winter months.

OMEA submitted that the allocation of the fixed portion of energy costs is a difficult process and noted that Hydro proposes to undertake this allocation on the basis of "operating savings" accruing to each period. It submitted that Hydro's method results in a slight reduction in the differential in energy costs between rating periods and that the Board should recommend that Hydro's proposed energy rates be adopted.

With respect to allocating capacity costs, OMEA submitted that these are the most difficult costs to allocate in any costing and pricing scheme. It pointed out that Hydro proposes to allocate capacity costs to rating periods. However, OMEA submitted that time-differentiated demand charges cannot be justified at this time because Hydro has failed to show that time-of-use rates would be a significantly more accurate method of tracking costs, given prevailing system characteristics. Peak users do not and will not for some time require additional capacity and hence cause capacity costs to be incurred; second, no benefits can be obtained in the near term if some peak usage is shifted to the off peak; and, third, even if OMEA were to be proved wrong on the first two points, it is incumbent upon Hydro to obtain more impact information from its ongoing time-of-use experiment before implementing time-differentiated demand charges. In addition, OMEA argued that the general lack of knowledge about customer response and the concerns of northern municipalities suggest strongly that a cautious approach would be more appropriate. OMEA submitted that the Board should therefore recommend that time-differentiated demand charges be rejected at this time.

OMEA argued that the EUE method is unacceptable because it is unstable, relies too heavily on subjective judgements, is not easily verifiable or understandable, has not been tested by Hydro's rate designers, and, as used, fails to reflect the realities of Hydro's system. OMEA therefore submitted that the Board recommend that EUE be rejected as a method of allocating capacity costs. OMEA submitted that the Board should recommend that customers continue to be billed on the basis of their non coincident peak demands each month.

With respect to determining appropriate customer classes, OMEA submitted that the Board's recommendation following the ECAPS hearing that a single customer class be adopted at the bulk power level, consisting of the municipal utilities, the present direct customers and the rural retail system as one customer, was best. It pointed out that based on the evidence and arguments presented in that hearing, the Board had recommended that a single customer class should be adopted. OMEA submitted that the new evidence cited in this hearing further reinforces the Board's recommendation. It noted that the rural retail rate subsidy eliminated the need to provide these customers additional diversity benefits through the Power District; and that the large user rates in effect further confirmed that the municipal utilities cannot compete with the direct industrial rate.

OMEA argued that although equity among large users is an issue that appears to concern Ontario Hydro greatly, equity among large users can be better achieved over time through the Board's recommendation rather than by Hydro's own proposal -- because Hydro's direct customers can gain a fair diversity benefit by becoming customers of the distribution system.

Finally, OMEA submitted that the Board must not simply overrule itself and that in order to avoid "total chaos and uncertainty" in the regulatory process, Ontario Hydro must discharge a serious onus of proof before this Board can endorse Hydro's customer class proposal.

Hydro's evidence must be both new and overwhelming and it was clearly neither. OMEA submitted that the Board should recommend that a single customer class be adopted at the bulk power level consisting of each municipal utility, each direct industrial customer of Hydro, and the rural retail system as one customer.

OMEA submitted that the target year for implementa tion should be 1984 and said that until then, it was willing to participate in Hydro's suggested study of its customer classes and defer any change in customer classes until the entire new system is implemented. It submitted that if no consensus on an appropriate customer classification system emerges by the end of 1983, the Board's recommendation should be adopted "without further delay".

In regard to setting rates for interruptible power, OMEA agreed that the interruptible discount should be small because in times of excess capacity, the major source of interruptible savings will result from mothballed capacity. OMEA submitted that Hydro has come up with a fair and equitable way of pricing interruptible power and the Board should recommend that the interruptible discount and rebate be accepted for 1983 subject to annual reviews.

OMEA submitted that the municipalities will require a signicant amount of time to design new rate forms, obtain time-of-use information, test the impact of new rate forms; consult with its large use customers; and that implementation in 1983 is therefore not possible because, even if the Board's original timetable is adhered to, this would leave the municipal utilities two months at best to carry out this "important and large" undertaking. Thus, OMEA submitted that the Board should recommend that the new rate structure be implemented in 1984; and that the Board should recommend that Hydro bill its customers for 1983 under the existing rate structure but include parallel information on billings under the new rate structure for informational purposes and as a transitional step.

Finally, OMEA argued that the timing of introduction of time-differentiated rates is crucial to the municipal utilities as they could encounter serious cashflow problems if time-of-use rates are introduced during the winter period. It submitted that the Board should recommend that time-differentiated rates be introduced in the month of April.

In conclusion, OMEA submitted that this proposal, though not perfect, is far superior to the earlier ones and provides a framework for the costing and pricing of electricity for many years to come.

URBAN DEVELOPMENT INSTITUTE

Dr. Rhodes, representing the Urban Development Institute (UDI) submitted that under the new proposal demand charges reflect costs not of meeting the demand but instead reflect costs of meeting that portion of the demand which exceeds the base load, and that demand costs associated with meeting only the base load, are rolled into energy charges. He submitted that more descriptive names for these new charges would be "excess demand" charges and "base load" charges.

UDI was concerned that assignments of costs to "base load" and "excess demand" charges are highly judgmental on the part of Ontario Hydro officials and pointed out that the judgment criteria are expected to vary from year to year and hence, may be a cause of rate instability; and as well that the proposed system of charges discourages rather than encourages efficient load management by end users.

Dr. Rhodes submitted that as Ontario Hydro's load management programs are lagging several years behind, the proposed rate structure seriously threatens end users with good load management systems already in place.

UDI was also particularly concerned that time dependent rate structures may cause exceedingly large load transients since no studies had been conducted into the effect of the proposed rates on the end user. Dr. Rhodes pointed out that many apartment buildings have the ability to switch from coal to oil to gas to electricity for space and domestic hot water heating with minimal capital expense, and that should the rate structure become time or seasonally dependent, many owners would switch fuels on an hour by hour basis so as to achieve their lowest overall operating cost. He also pointed out that Ontario Hydro admitted that its load forecasts did not allow for large scale fuel substitution; nor has it properly addressed the problem of sudden large load changes at the boundaries of its proposed time dependent rates.

UDI was further concerned that the proposed rates are highly unfair, arguing that if a municipality also adopts Hydro's principles of cost causality and passes Hydro's proposed rates on to the end users within that municipality, the consequences would be that the electricity costs of low load factor users, particularly air conditioned office buildings, substantially decrease; and that the electricity costs of moderate load factor users stay approximately the same while electricity costs of high load factor users, particularly electrically heated high rise residential buildings, substantially increase.

UDI submitted that in other words, the more a customer has improved his load factor, the more that customer is penalized by implementation of the new rate structure.

It argued that the proposed 60 percent increase in the cost of an incremental winter KW.h, from 1.32¢ to 2.11¢ is grossly unfair to end users who efficiently use the off peak electricity which Ontario Hydro could not otherwise sell. UDI submitted that Ontario Hydro will find that its revenues from these sales will drop sharply as a result of this increase.

It contended that the proposed rate structure is also highly unfair in the sense that it imposes on the high load factor customers the major burden of Ontario Hydro's management decisions to overbuild its fossil fuel generation capacity and underbuild its nuclear generation capacity. UDI submitted that Hydro's refusal fifteen years ago to proceed vigorously with nuclear technology has led to the present situation where it is mothballing a relatively new fossil fuelled plant and replacing it with a nuclear plant -- consequently, Hydro's high load factor customers are now in effect being asked to pay for Ontario Hydro's mistakes. UDI submitted that the proposed charges are discriminatory and that costs ought to be borne by all electricity users in proportion to their individual peak demands.

UDI also pointed out that ever since Ontario Hydro's proposed rate changes became generally known within the building industry, not one new project involving a major load management system has been approved for construction. The consequence of this is that some years hence, Ontario Hydro will discover that all buildings whose construction commenced after 1980 will have no facilities for load management and that retrofitting is tremendously expensive. UDI predicted that the effect of Ontario Hydro's rate proposals will therefore be to create a situation which rules out future implementation of large scale load management.

Finally, UDI submitted that it finds little merit in any of Ontario Hydro's proposals. It argued that the proposals carry a considerable administrative overhead burden, and also involve:

- a massive program of meter modifications;
- a massive program of control system modifications;
- major commitments by Ontario Hydro to spinning capacity to meet transient load changes;

- major restructuring of utility rates within municipalities to the benefit of some sectors and to the detriment of others;
- a major and much expanded commitment by Ontario Hydro to utility operated load management; and,
- substantial future changes in the Ontario building code to provide for load management.

UDI submitted that the Board ought to delay implementation of this new rate structure for at least one year to allow political input by the affected end users. Further, UDI suggested that the Board delay implementation of the new rate proposals for a year while Ontario Hydro studies the effect of the rate proposals on end users.

Views of Board Counsel

In introducing his argument regarding the revenue requirement, Mr. Rogers submitted that the hearing process could be greatly improved by more orderly and more timely production of relevant material; and that the Board should formally specify to Ontario Hydro well in advance of the hearing, the material it requires to be contained in the rate submission as this should reduce the need for extensive interrogatories.

Evidence was led by Board Counsel from Chase Econometrics. He submitted that Chase's forecast, prepared one month later than the Hydro update, should be preferred for rate setting purposes because it was based on the most recent information. He pointed out that Chase's forecast is similar to Hydro's forecast in many respects when viewed across two years -- 1982 and 1983 -- but that an important difference occurs in the forecast of inflation rates which have a significant impact on Hydro's rates since each percentage point of inflation is responsible for approximately $17 million in the amount of the revenue requirement. He said that over the next two years inflation rates will decline in the United States, with a resulting decline in Ontario -- which the Chase forecast illustrates, while Hydro's does not.

Mr. Rogers noted that Chase (which is affiliated with the Chase Manhattan Bank of New York) is a large, highly respected forecasting service with offices around the world and a very significant presence in the United States.

He submitted that Hydro had the highest forecast of inflation rates of those respected forecasters chosen by Hydro for comparative purposes, whereas the Chase forecast is 3.4 percentage points lower than Hydro's forecast. He recommended that the Board should accept the Chase forecast particularly with respect to projected inflation rates, which would reduce the revenue requirement by approximately $58 million.

Mr. Rogers pointed out that in total, the net revenue requirement adjustment resulting from economic factors, assuming the Chase forecast and accepting the Hydro forecast of changed foreign exchange and interest rates, is a $71 million reduction.

In regard to the load forecast, Board Counsel noted that Hydro has been relatively accurate over the past several years, at least in the short run. However, as Hydro's forecaster, Mr. Higgins, has taken the view that the seasonality of the new rates will not have any effect on demand, Mr. Rogers questioned the usefulness of the change in rate structure.

In regard to energy variable costs, Mr. Rogers submitted that the best way to test Hydro's forecast of these is to look to recent past experience. He referred to evidence which indicates that the energy variable costs forecast by Hydro for the rate case in each of the years 1980, 1981 and 1982 were higher than the figure eventually adopted for budgeting purposes. He argued that more importantly, the rate making forecast was substantially higher in 1980 and 1981 than the actual results achieved. For 1981, this meant that accordingly, energy variable costs were overstated by $140 million which was recovered in the rates. As well, he noted that in 1982, if Hydro's January forecast is correct, some $85 million will be recovered in the rates for fuel which was not burned. He said that the evidence indicates that Hydro has consistently overstated its energy variable costs for rate making purposes for each year since 1976; and that there has been a strong tendency to understate the capacity factors of the nuclear units with the result that fuel costs are overstated.

With respect to Hydro's proposed new method of estimating hydraulic output, Mr. Rogers submitted that the use of the new approach increases the revenue requirement by about $1 million and that therefore the old time tested approach should be used until the new method can be shown to be superior.

He noted that Hydro is paying a large but undetermined sum by way of penalties to Petrosar for oil purchased but not used, as well as paying between

20 percent and 30 percent more for uranium in 1983 than the world price (at least for new supplies). He pointed out that there are large interest free loans outstanding with respect to the uranium contracts which influence the revenue requirement upward. He submitted that Hydro's large inventories in fuel may not be necessary since there is insufficient proof to demonstrate that a 10 month inventory in nuclear fuel is necessary and the analysis is based upon unnecessarily conservative assumptions.

With respect to its secondary purchases and sales, Board Counsel submitted that Hydro is once again extremely conservative in its forecast of electricity purchases and sales, with the result that the revenue requirement is overstated. He recommended accordingly that the forecast 1983 levels of power purchases should be revised upwards to the actual levels of purchases experienced in 1981 -- thereby increasing forecast purchases from Quebec and Manitoba -- with a resulting reduction in revenue requirement of about $14 million.

He argued that Hydro has also been unduly conservative with respect to its forecast of secondary sales, as well as consistently underestimating gross secondary sales revenue since 1977. He said that it is reasonable to assume that Hydro will realize higher secondary sales revenue in 1983 than forecast and submitted that the revenue requirement could be conservatively reduced by a minimum of $9 million to $12 million.

In the area of OM&A costs, Board Counsel pointed out that an increase of 16.2 percent in 1983 over 1982 on top of a 19 percent increase in 1982, is hard to justify at a time of economic recession.

With respect to Ontario Hydro's management control system, OOOH, Mr. Rogers said that it appears to be unduly complex as Hydro has developed a new language for it, which makes it unnecessarily difficult to implement. The program has been delayed and it is no longer intended to be used as extensively in the organization as was originally planned.

In respect to wage rates which are forecast to increase by 15.2 percent in 1982 and a further 12.5 percent in 1983, Mr. Rogers submitted that these are higher even than Hydro's forecast of inflation rates "which are themselves likely too high" and is difficult to justify "in a year of recession, high unemployment, economic despair and a six percent provincial government ceiling".

Board Counsel submitted that the OM&A costs forecast by Ontario Hydro are too high and should be reduced by an amount of $25 million to $66 million by either accepting the level of $958 million forecast for 1983 in H.R.10, thereby reducing the current proposal by $66 million; or by holding staff levels constant from 1982 to 1983, which would reduce the regular staff by 555 employees for 1983 and would reduce OM&A by approximately $25 million; or by holding staff levels constant from 1982 to 1983 but limiting the wage escalation to 10 percent, which would result in a reduction of approximately $59 million in OM&A costs.

He then argued that concern must be expressed over the control of capital costs as these forecasts are increasing at an alarming rate -- in part caused by automatic indexing to inflation rates. He submitted that greater attention should be given to management control systems over capital expenditures in future proceedings. As well, he pointed out that Ontario Hydro is "plagued with excesses" including oil, western Canadian coal, uranium, heavy water and heavy water production facilities, all of which influence rates upwards.

He also submitted that Ontario Hydro has under-forecast the availability of long term capital and has assumed borrowings in high cost short term debt which are too high on a most probable basis and that accordingly, approximately $3 million in interest costs should be removed from the revenue requirement.

With respect to the cash management study which Hydro filed during the hearing, he pointed out that recommendations contained in the first phase of this study, along with those which should follow with further study, could result in savings of approximately

$6 million to $15 million -- which should be removed from the revenue requirement.

He submitted that changes in depreciation and particularly a change in plans concerning replacement of fuel channels in the nuclear facilities, calls into question the provision for future costs included in the 1983 revenue requirement. With respect to the fuel channels, the "REFAB" refitting option, rather than replacement should be considered to be most likely at the present time, with a resulting reduction of approximately $12.2 million in the 1983 revenue requirement.

He pointed out that Ontario Hydro has again included an amount in revenue requirement for the dismantlement of nuclear sites calculated on the basis of future unrestricted site use, which the Board had considered and rejected in its 1981 report. Accordingly, he submitted that the amount included in the revenue requirement should be reduced by $5.5 million to reflect the Board's decision already made in 1981.

In regard to Hydro's proposed accounting change related to foreign exchange gains and losses, Mr. Rogers pointed out that once again, as last year, the reasons for the proposed change had been poorly documented despite numerous requests for information; and submitted that the Board should not approve the change until it has been thoroughly analyzed and approved by the Ontario

Hydro Board. He noted that if this approach is adopted, approximately $15 million would be reduced from the revenue requirement.

In regard to Ontario Hydro's proposal to base net income on a times interest coverage of 1.275 -- an increase from its traditional target of 1.25 -- which Hydro has proposed in order to reduce the need for extremely high rate increases in subsequent years, Board Counsel submitted that Hydro's target debt/equity ratio and times interest coverage level were established in 1975 in circumstances considerably different from those which exist today.

He submitted that a times interest coverage deemed to be acceptable in 1975 is unlikely to be appropriate today at a time of unprecedented interest rates, declining debt/equity and interest/profit ratios, and a time of economic recession. He argued that this is an inappropriate year in which to be recovering additional sums in the revenue requirement to offset forecast future increases. He pointed out that interest coverage ratio of 1.25 would reduce rates by $50 million for 1983.

In conclusion, Board Counsel noted that because of claimed confidentiality, over half of Hydro's forecast costs cannot be thoroughly examined in a public hearing.

Mr. Rogers submitted that costing and rate proposals should be assessed against the principles established in

H.R.5. He pointed out that extensive discussions took place with Ontario Hydro's customers which resulted in a number of changes to the original proposal, and submitted that the changes made in the cost allocation were designed to affect the ultimate rates.

He said that although Ontario Hydro was asked to provide a detailed cost of service study, no such study was ever provided and that additional detail which was eventually produced was unfortunately in a form which was "unintelligible to those outside Ontario Hydro". He submitted that Ontario Hydro's approach to cost allocation is too complex and that rate impact modifications are prematurely introduced into the cost allocation process, and argued that the cost allocation should be done independently of rate design. Because of a lack of understandable data made available by Ontario Hydro, he noted that relatively little attention was given to the functionalization process -- which he submitted was one of the more important steps in a cost allocation study. He recommended that this study should be presented in a form which allows for assessment of cost allocation alternatives.

Mr. Rogers submitted that the Board should recommend that Ontario Hydro expedite the study of the common/non common costs being prepared for 1985 so that it can be reviewed in time for implementation in the 1984 rates.

He argued that Ontario Hydro does not follow the traditional approach of dividing all common costs between those which are fixed and those which are variable; and submitted that it would improve the usefulness of its cost analysis if it were to do so. He said that Ontario Hydro does not determine "energy variable costs" but rather refers to a concept of "exclusively energy related" costs so that many fixed charges, such as oil underlift payments and advance payments for fuel, are classified as energy variable costs. He noted that Ontario Hydro's approach is to determine the "exclusively energy" and "energy related" costs, and that in determining which fixed plant costs should be allocated to the energy side, Ontario Hydro uses the composite peaking plant (CPP) methodology as a first step -- which designated some $590 million as energy related, that amount being the residual after calculations are made for capacity related generating costs using CPP. He argued that the appropriateness of these residual costs are not tested by any means other than some crude reasonableness checks. Further, as general costs are allocated in accordance with the relative capacity/energy split derived for common generation and grid costs combined, he submitted that the cost allocation therefore may not accurately track costs. He submitted that the Board should recommend that Hydro prepare a cost allocation study using the traditional fixed/variable approach so that all fixed costs are separated from all variable costs before any adjustments are made and that if Hydro wishes to propose its own methods, the fixed/variable analysis should be presented in any event for comparative purposes.

In regard to Hydro's allocation of capacity costs to rating periods using the concept of expected unsupplied energy (EUE), he pointed out that this concept was developed by Hydro and is not in use for rate making purposes in any other utility, nor has it been approved by any other regulatory commission. He argued that it assumes an optimal system without excess capacity which ignores the reality of Ontario Hydro. He submitted that furthermore, the method is unduly complicated, arbitrary and unstable; and that it depends upon hypothetical and subjective judgments in a number of areas. Mr. Rogers submitted that the Board should recommend that Hydro allocate demand costs to rating periods for 1984 rates using a form of the demand/maintenance method as recommended by the Board following H.R.5.

In regard to energy related generating plant costs which are assigned to rating periods on the basis of relative degrees of "energy savings", he pointed out that this method is also complex. He argued that it assumes that energy is produced by the most expensive plant in the system and then purports to measure the "energy savings". He submitted that this is a misapplication of marginal cost principles.

Finally, he submitted that the simple and practical method of allocating costs to rating periods suggested by Dr. Melody (which determined the cost of generating energy in the various time periods) would thereby establish cost relationships among the periods. He submitted that such costs would then be adjusted upward uniformly in order to recover the revenue requirement and that an appropriate demand charge could be introduced to moderate impact and to promote stability. He submitted that the Board should recommend that Dr. Melody's suggested method of time-differentiating rates be adopted by Ontario Hydro or, alternatively, provided for comparative purposes next year.

He pointed out that although the analysis based on EUE indicated that September should be a summer month, Ontario Hydro proposes to place September in the winter season and submitted that insufficient evidence was adduced to explain the cause of costs in September. He recommended that in the absence of more persuasive evidence, the Board should recommend two six month seasons "which intuitively seems more sensible", pending further review in 1984.

In regard to customer classification, Mr. Rogers pointed out that Ontario Hydro is proposing to continue with the present classification of customers contrary to the recommendation of the Ontario Energy Board. He submitted that in its H.R.5 report, the Board had recommended that a single customer class be adopted at the bulk power level. He submitted that there is no fresh evidence before the Board to justify a departure from its earlier decision. He argued that the issue was thoroughly reviewed in H.R.5 and that the Board should not change its recommendation concerning customer classes.

Mr. Rogers submitted that it should be possible to begin to eliminate the demand charge gradually over time and that although insufficient data is available to allow significant diurnal differentiation of energy charges, it is desirable to introduce a modest diurnal energy differential for 1983. Further, that the Board should recommend that Ontario Hydro begin to de-emphasize the demand charge component with the introduction of time-of-use rates and that it adopt a long term goal of a rate structure based upon a time-differentiated, single part rate, and multiple rating periods.

He argued that Hydro's proposal concerning interruptible rates is a departure from the concept discussed in H.R. 5 and is based upon the "fallacious" concept of the "energy savings" associated with assumed increased mothballing potential. He submitted that in view of Hydro's excess capacity, it should have an interruptible rate based only on actual interruption and that the measure of the discount should be based on the minimal risk of system failure rather than the imagined "savings" of enhanced de-mothballing potential. He further submitted that Ontario Hydro's proposal to introduce negotiated interruptible rates should be discouraged by the Board because such rates give rise to the potential for "undue discrimination, suspicion and administrative complications".

He also submitted that there is no logical reason for Ontario Hydro to choose to present its rates for municipalities with a split at the 50 KV level, and that in future the split should be made at the 115 KV level. He also submitted that an appropriate cost based discount for customers taking service at 230 KV should be studied and recalculated for inclusion in 1984 rates.

He submitted that any recommended reduction in the revenue requirement should be introduced into the cost allocation so that the cost levels approved by the Board are properly tracked to the customers.

Mr. Rogers submitted that Ontario Hydro has made very little progress over the past two and one half years in collecting relevant load research data; and that the lack of impact data severely reduced the Board and Ontario Hydro's ability to consider rate alternatives. He argued that Ontario Hydro should intensify and accelerate its load research so that better impact information is available to allow the consideration of alternatives and to address individual impact concerns, as well as a reasonable assessment of the need for rate adjustment prior to the next rate hearing. He pointed out that it is important that time-of-use rates at the bulk level be properly transmitted to end use customers and that Ontario Hydro should be encouraged to use its regulatory powers to accurately reflect those signals to the extent possible. He submitted that a phantom bill, showing the effects of fully differentiated energy charges as proposed for 1984, should be introduced in 1983 as a useful means of educating Ontario Hydro's customers concerning future changes.

He noted that the absence of adequate load research was particularly noticeable in the case of northern Ontario and referred to the considerable attention devoted to the "alleged impact disparity" arising out of the new rate form. He said that unfortunately, Ontario Hydro's evidence on this point was confusing and inadequate and that the question remains unresolved, while pointing out that it is surprising that Ontario Hydro does not have better data concerning its customers' consumption patterns. He submitted that further work specific to northern Ontario should be undertaken so that better evidence can be presented to the Board in future cases concerning the effects of time of use rates on northern Ontario consumers.

Although it has been traditional to exclude questions of system expansion from the annual rate hearing, Mr. Rogers argued that such an approach may no longer be practical. In view of Hydro's excess capacity and huge planned capital additions, costs and hence, the revenue requirement, are unavoidably tied to the system expansion plan. Accordingly, he submitted that the Board should draw to the attention of the Minister the serious impact of the system expansion plan on costs and rates;and should recommend that future rate references be made broad enough to allow reasonable examination of Ontario Hydro's system expansion program.

He submitted that the Board should recommend that some form of public review or examination of municipal rates be undertaken to ensure that the time-of-use features of the bulk rates are being transmitted to the end users in an appropriate way.

In conclusion, Mr. Rogers submitted that although Ontario Hydro's proposals have been criticized, they should be adopted for 1983 as a step in the right direction, subject to the foregoing adjustments.

Response of Ontario Hydro

In regard to the Chase forecast for the U.S. and Canadian inflation rates, Ontario Hydro submitted that it rests essentially on the following significant assumptions:

- that there will be a compromise in U.S. fiscal and monetary policy that will significantly improve business productivity (and thereby lower inflationary pressures) in time to affect the economy for 1983;
- that the rates of escalation on food prices at the retail level in both Canada and the U.S.A. will continue to be low;
- that the increases prescribed by the federal-provincial agreement on oil prices will have a lower impact on the Canadian CPI than Ontario Hydro expects; and,
- that the rate of escalation of wage settlements will continue to moderate in the United States and begin to do so significantly in Ontario.

On the other hand, it pointed out that its annual review indicates that in 1983 the economy will be highly uncertain and risky. While the long run outlook over the decade outlines a gradual decline in inflation, the forecast of inflation for North America in 1983 is based on the assumptions that:

- it is unlikely that a compromise in U.S. monetary and fiscal policy directions will take place soon enough to produce substantial productivity increases in the U.S. economy in 1983;
- the rapidly deteriorating government deficit situation in the United States and Canada (with U.S. deficits in the order of $150 billion predicted for 1983) will continue to feed inflationary expectations;
- as the corporate sector in North America is in a period of squeezed profits and restricted cash flows with which to pay escalating wages and high interest charges, price increases will be required to enhance cash flow positions and stave off insolvency;
- inflationary adjustments built into the economy either implicitly or explicitly (such as indexed public service pensions and indexed income taxes) will maintain high inflationary expectations;
- currently a large number of short term price "rebate" programs exist in the consumer market and prices will begin to rise more sharply again when they have been discontinued;
- the attitude of labour towards bargaining, especially in Canada, will not moderate enough to reduce inflationary impacts in Canada substantially over the next year to eighteen months; and,

- in Canada as well, the federal-provincial oil pricing agreements guarantee inflationary pressures from increased domestic energy prices in both 1982 and 1983.

Hydro submitted that the assumptions underlying the Chase Econometrics forecast for inflation rates in 1983 are too optimistic since Hydro believes that it will take longer to effect a substained reduction in inflation.

In regard to OMEA's recommendation that the contract between Ontario Hydro and AECL for the operation of NPD be cancelled because the unit cost of electricity from NPD is high compared to alternative fossil fired sources, as well as the value of the plant as a training facility being limited, Ontario Hydro submitted that this argument overlooks the value of NPD as a "test bed". Mr. Genest indicated that its value in this respect is twofold since it demonstrates the long term (over 20 years) effects of nuclear radiation and comparatively high temperature and pressure on critical plant equipment, which can give forewarning of problems in the large newer plants built on the same principle. Furthermore, it has been used, and can still be used, to conduct special experiments on, for example, new types of fuel. Furthermore, he said that it is not correct for OMEA to suggest that its use for training is doubtful as it is, in fact, particularly useful for training operating supervisory staff who will be greatly needed to operate the new nuclear capacity coming on line in the next year or two.

In regard to the issue of renegotiating the Payback which AMPCO had once again raised in stating that, "Ontario Hydro should obtain legal counsel to assess possible alternate course of action ranging from substantial revisions to the existing terms to unilateral termination", Mr. Genest pointed out that Hydro had testified that it had considered various options for dealing with the agreement but that the alternative which benefits Ontario customers tends to disadvantage the other partners and is therefore acceptable to them, and vice versa. Hydro rejected the suggestion that it should end the agreement unilaterally, since there is no reasonable basis for such action. It submitted that to do so would undoubtedly involve Hydro in damages just as heavy as the amount it is responsible for under the contract.

In regard to Ontario Hydro's reasons for maintaining a ten month nuclear fuel inventory, counsel pointed out that a new fuel fabrication facility would have to be built and dedicated to Ontario Hydro at a time when there is already excess fuel fabrication capacity in Canada. However, Hydro did point out that the Fuels Division intends to conduct an extensive review of the inventory in the coming months.

It also emphasized that long term contracts for the supply of uranium were not entered into primarily because of price but for security of supply. As well, Hydro had negotiated reductions in the amount purchased from Elliott Lake and this will yield considerable savings for the Corporation.

In regard to Ontario Hydro's contractual dealings with its coal suppliers, Hydro argued that the details of such dealings are confidential and that their public disclosure would inflict commercial harm on Hydro and its customers.

In regard to Mr. Rogers' statement that "it is important to recognize that of the total gross revenue requirement of $4.2 billion over 50 percent consists of costs which cannot be thoroughly examined", Hydro submitted that this is without foundation since outside of specific components of fuel contracts and individual cases of contractual negotiations, Ontario Hydro's costs can be as thoroughly examined as anyone wants. He pointed out that the detailed budgets of every Ontario Hydro branch have been filed with the Board, as well as details of the OHEU contract settlements.

In regard to OM&A costs, Hydro submitted that its budget process has been reviewed extensively in this year's hearing, as well as many of the management systems, and that the evidence shows that significant improvements to these processes and systems have been made.

Demands on Hydro continue to grow and its forecast of OM&A costs for 1983 reflects this. Much of the increase in costs and staff levels (approximately

70 percent) are associated with the nuclear program and will result in overall lower cost to customers through savings in fuel cost. Hydro argued that a real growth rate of 2.8 percent in OM&A costs compares favourably with the projected "demand" (capacity and energy) growth rate. Hydro submitted that there is a more logical rationale for comparing OM&A growth rates to the "supply" side of the equation since new plant additions have to be designed, constructed, operated, and supported. A real growth rate of 2.8 percent is significantly lower than the current rate of system expansion (even allowing for planned facility retirements). In addition, Hydro is continuing to meet the growing needs of customers and to respond to new requirements in areas such as energy conservation; health and safety; and environmental concerns.

In setting 1983 rates, Hydro pointed out that the budget process was "the most exhaustive budget process that Ontario Hydro has every gone through".

In response to the criticisms of the OOOH program, Hydro pointed out that OOOH is a management control system consisting of fundamental control system elements such as objectives, policies, procedures, predictions, and strategies. The language used to define the system is very technically precise and any difficulty that has arisen is due to this technical precision. As well, action is underway to simplify it. Many large corporations have documented management control systems which place varying interpretations on particular terms, and hence have a degree of uniqueness.

In regard to Board Counsel's argument that "costs are indexed to the inflation rate", Hydro submitted that line budgets are prepared in constant dollars, so that an analysis can be made of the real changes in work that have taken place, and to facilitate comparisons with other benchmarks. Thus the 1983 cost levels contained in the budget submissions were stated in 1982 dollars, and then escalated into dollars of the year. Hydro argued that there is nothing unusual about this process which is designed to facilitate analysis of the budget to separate price changes from volume changes. It pointed out that accurate cost estimates in all companies must use forecasts of cost increases for labour and materials.

In 1980, actual OM&A costs were 1 percent below the rate setting forecast; 1981 OM&A program costs were 3 percent above the forecasts; and the track record of actual cost versus budget has been good over the past several years.

In regard to the increases in labour compensation for 1982 and the overall compensation levels, Hydro pointed out that its salaries in 1982 result from a combination of factors and must be viewed from a broader perspective than the year 1982. Approximately 3.6 percentage points of the increase shown for 1982 salaries is the effect of a cost-of-living clause triggered at the end of the two year collective agreement which expired March 31, 1982. It pointed out that during the calendar year 1981, these employees received an average salary increase of 7.8 percent, well below the rate of inflation. It also noted that a new two year agreement beginning April 1, 1982 which provided for an increase of 12.8 percent in the first year and 10 percent in the second year, has a cost-of-living clause which would be triggered if inflation exceeds 10 percent in the second year only.

It then pointed out that for the professional and management staff, a 13.6 percent increase shown for 1982 includes the carry over effect of a mid year increase in July 1981, together with the effect of increases negotiated for 1982. The 1981 salary increase was below the rate of inflation, as well as being below community salary increases in that year.

For the approximately 600 staff paid from the Executive Salary Roll, Hydro said that the 1982 increase was decided in December 1981, and was aimed at keeping pace with the rate of executive salary increases indicated by Hay Associates' surveys for 1982. The January 1, 1982 increase for this group averaged 10.65 percent; and it said that a further increase to Ontario Hydro's executive salary line in July 1982 was also intended to move this line from its below average standing towards the Hay survey's average line. However, this is now under review in the light of the new 6 percent Provincial guideline. Hydro pointed out as well that data contained in evidence shows that over the period 1976-1982, the rate of movement in its executive salaries was well below both the rate for external executive salaries and inflation; and that it can also be demonstrated that, over the past five or six years, wage increases for unionized staff were in keeping with community increases. Furthermore, the evidence demonstrated that average wages are comparable with other high technology industries in Ontario, such as petroleum and coal products, industrial chemicals, engineering and scientific services.

In regard to OMEA's recommendation that Hydro should revise its policy for paying engineers in the upper quartile, Hydro's response is to "establish and maintain compensation programs, comprised of effective combinations of pay, allowances, and benefits, which contribute to a corporate environment that attracts, retains, and motivates a workforce capable of achieving corporate objectives". A high technology, capital intensive organization requires a high calibre of engineering expertise, which Hydro noted, has contributed to the success of the nuclear program. Thus, to attract and retain engineering staff of the calibre required, Hydro has for some years now used a third quartile salary standard for professional and management staff.

Ontario Hydro submitted that it is difficult to understand how OMEA could conclude that Hydro is not effectively controlling its cost when it totally ignored the primary process through which Hydro's budgets are derived, namely, the work program budgeting process which was described in evidence as a budget process that "is as good as any utility anywhere in North America" and argued that OMEA is "altogether silent on this vital aspect of cost control". It was therefore Hydro's submission that "the rather extreme conclusions" found in OMEA's recommendations have not been supported by argument or by the evidence; and that if an intervenor chooses to urge drastic recommendations of this kind upon the Board, it should be ready to support them with positive evidence, so that Ontario Hydro can have a fair opportunity to test their validity.

Ontario Hydro noted that AMPCO had questioned the level of salaries paid to the staff of the Branch Comptrollers and pointed out that wage costs set out in evidence represented total labour costs including base wages, overtime, payroll burden, and other labour costs for temporary staff and do not, therefore, represent salaries. Staff levels are based on year end figures and there can be distortions in these because of the timing of hirings. Wage costs are also rounded to the nearest $100,000 so that for relativity small groups, an average can be distorted even further.

Hydro rejected the assertion made by the OFA and Board Counsel that a proportion of the December expenditures are made to reach a forecast budget. Evidence showed that the December variance is close to the variance that the line organization had been projecting since June.

With respect to the pilot office automation project which Board Counsel had stated cost $4.7 million, Mr. Genest argued that the project will cost $600,000 in 1983 and pointed out that it is part of an information management program similar to that of many large companies.

Hydro totally rejected the rate of inflation as a valid benchmark for measuring OM&A costs and argued that if it were valid, "there would have been no real increase in OM&A costs since Adam Beck".

Ontario Hydro submitted that the bulk of the proposed increase is related to bringing nuclear units on line in the next few years. In regard to Ontario Hydro holding staff levels constant for 1983, it submitted that the impact of this would be less than $25 million and this would in effect represent an arbitrary budget reduction, which is not a responsible approach. As to the option that Ontario Hydro hold staff levels constant from 1982 to 1983 and limit wage escalation to 10 percent, Ontario Hydro's response was the same.

In regard to public relations and the report submitted by Hydro, criticism that Woods Gordon, the author, is not knowledgeable in the field of public relations misses the point of the operational evaluation since Woods Gordon is an expert in program evaluation and operational audit, and that is what the Board requested in H.R.10.

Ontario Hydro submitted that the tests devised to carry out the Woods Gordon's evaluation were the only ones that could be considered, given the complete lack of any industry wide benchmarks for measuring effectiveness in public relations. The study was designed to see whether Hydro's expenditures differed materially from those of comparable organizations. In regard to Energy Probe's suggestion that Woods Gordon was not suitably independent and that the value of their report was therefore compromised, Mr. Genest submitted that this Board should consider that Woods Gordon is a professional body with high standards of ethics governing its operations.

With respect to capital costs, Hydro noted that it would appear that the process of reflecting up-to-date forecasts of interest and escalation on costs to be incurred in future years is leading some counsel to the false conclusion that there are deficiencies in Hydro's cost control system. Ontario Hydro submitted that the incorporation of a consistent economic outlook is sound management practice; and submitted that it should be "abundantly clear" that the increase of future costs in all areas merely reflects the economic outlook for the remainder of the 1980s, and cannot be used to condemn the systems which portray those costs.

In regard to its heavy water inventories, Ontario Hydro pointed out that for the period following 1987, production was based on a simple extrapolation and that the whole plan was under review. He pointed out that about three quarters of the costs of producing heavy water are fixed and cannot be reduced by changing the production level.

With respect to arguments that the cancellation of the Alsands project, the Alaskan Highway pipeline, and other projects will leave more room in the market for Hydro to borrow long term debt and thus reduce the revenue requirement by some $3 million, Ontario Hydro submitted that this is not supported by the evidence. Other factors must be considered besides the cancellation of these megaprojects -- including the greater than anticipated increase in government deficits, and the fact that the Alberta Heritage Fund has cut lending to the other provinces.

To spread the risk of future movements in interest rates, Hydro indicated that it plans to issue significantly more intermediate term debt in 1982 and 1983 than in the recent past, but said that nonetheless, given the present uncertainty, it is prudent for Hydro to do some long term financing to hedge against the possibility that interest rates will move even higher.

In regard to the Corporation's borrowing program in Canada and the United States, Hydro pointed out that it is supported by a debt retirement program aimed at improving the marketability of its bonds and enhancing their reputation.

Hydro submitted that Board Counsel's argument to lower the revenue requirement by $9 million to allow for savings attributable to the cash management study was unwarranted. Hydro submitted it would be premature to make any change in its revenue requirement because of this cash management study; and that the study will proceed as soon as the steering committee has approved terms of reference and allocated resources.

In regard to Mr. Rogers' argument in which he raised some concerns with what he contended was a consistent bias towards overestimating depreciation costs in Hydro's rate submission, Mr. Genest pointed out that Mr. Russell testified that variances between forecast and actual depreciation expense can result from a number of factors -- an important one being the scheduled in service dates of new facilities -- but submitted that Hydro's track record for forecasting scheduled in service dates has been reasonable in terms of its effect on depreciation expense. In regard to the variances in the 1980 and 1981 depreciation charges, Ontario Hydro submitted that these were not due to an estimating bias, but due to reducing the amortization rate for deferred construction projects to half the normal depreciation rate, as well as the cancellation of the Wesleyville construction project in 1980 which meant that no amortization charges for Wesleyville were included in 1981 actual costs. Hydro submitted that it is unreasonable to expect it to be able to forecast such extraordinary items as the cancellation of a major project and that when these two major items are taken into consideration, depreciation forecasts have been more than reasonable over the past several years.

As far as the estimated costs of removing fuel channels at Pickering NGS and Bruce NGS A, the Depreciation Review Committee has now determined that it can postpone replacing these fuel channels at two units at Pickering for ten years and thereby reduce the revenue requirement for 1983 by $1 million. However, at present, the most probable expectation is that this cannot be done for the remaining Pickering Units or the Bruce A Units.

Ontario Hydro stated that it remained convinced that its originally proposed option of unrestriced site use was the socially responsible and technically supportable alternative. This approach will cost $11.7 million in 1983. Hydro therefore submitted that the Board accept its recommended decommissioning approach as the most appropriate basis for determining decommissioning costs.

In regard to the $16 million in the revenue requirement for the amortization of the estimated loss in value of the deferred construction of Bruce Heavy Water Plant D, Hydro could find no evidence that generally accepted accounting principles would support charging the deferred project amortization to the cost of heavy water. Ontario Hydro therefore submitted that the inclusion of these amounts is in accordance with "a policy which has been thoroughly aired and which this Board has endorsed".

In regard to irradiated fuel management, Hydro pointed out that during H.R.10 it submitted considerable evidence on this subject with which the Board had agreed. It is Hydro's position therefore that this charge is equally appropriate in 1983. Hydro's best estimate is that it still expects to bring a disposal facility into service by about the year 2000. As well, federal and provincial governments announced a target completion date of 1990 for their assessment of the method of disposing of irradiated fuel.

In regard to the adverse effect Pickering 5 will have on rates when it is placed in service in 1983, Hydro pointed out that even with a wide variation in forecast data assumptions, the basic economic advantage of nuclear generation is clear. New nuclear generation is both capital intensive and labour intensive compared to fossil fired generation. Hydro argued that fuel costs are so much lower for nuclear that the overall economics still clearly favour it.

With respect to the proposed accounting policy on foreign exchange, Hydro commented that essentially, the argument of counsel opposing the change is that the policy should not be approved because the Canadian Institute of Chartered Accountants has made no official pronouncement on the issue and because it has not been reviewed by the Hydro Board of Directors. Hydro pointed out that it is expected to forecast what is most probable with respect to this particular policy; and that it would be inappropriate for Hydro not to make provision for it in its submission for 1983 rates. The proposed policy is appropriate and equitable in that it will distribute foreign exchange gains or losses to customers over the time that the debt is outstanding. It is what the CICA will most likely require for the treatment of foreign exchange gains and losses in 1983.

Ontario Hydro's policy on accounting for premature debt retirement was instituted last year because it improved the matching of costs and revenues and was strongly supported by its auditors. The variable gains or losses would impact on the rates in the particular year when they occur, which would produce inequity between present and future customers as well as instability in the rates. The $90 million impact in 1981 precisely illustrates this point, since to recover such a sum entirely in 1981 because of a fortuitous gain on redemption would, in fact, cause instability. Hydro's

1981 statements were not qualified in any way and although they did include a statement of the change in policy, this did not constitute a qualification.

Hydro seeks to achieve equity by allocating costs and benefits fairly between its present and future customers. While the application of generally accepted accounting principles may not achieve these objectives perfectly in itself, it does provide a consistent framework for achieving them.

Hydro submitted that it can accomplish smoothing through the net income mechanism rather than by adopting unorthodox accounting practices as advocated by some counsel.

In regard to the argument that commissioning energy should be costed at the level of other nuclear energy, Hydro stated that its policy is that during the commissioning period, the costs of labour, materials and fuel are capitalized with the deemed value of energy delivered offsetting these amounts. This charges both present and future customers on an equitable basis. In other words, the cost of current operations is neither increased nor decreased by commissioning energy.

Hydro submitted that the principle underlying the present method of costing during the commissioning period is that current costs should not be affected because a new unit is being commissioned. Furthermore, to achieve this, it is necessary to estimate what the costs would be if no commissioning were being carried out, so that charging the system with the incremental cost of the energy displaced has this effect and leaves the cost uncertainties to be borne by future customers.

With respect to interest coverage in 1983 for financial soundness, Hydro proposed an interest coverage ratio of 1.35 and a debt ratio range of 0.80 to 0.82. It submitted that these represent a level which Hydro would ultimately wish to attain.

Hydro submitted that the difficult economic climate which is expected to prevail over the next few years makes it more important than ever that the Corporation retain its financial soundness. Hydro also pointed out that the Minister of Energy in his letter of reference, gave no indication whatsoever that the government wants Hydro to use its net income policy to improve the state of the economy. The primary concerns mentioned in the letter are the maintenance of financial soundness and the desirability of stable rate increases; and that Ontario Hydro should develop its 1983 net income using the criteria established for previous years.

Ontario Hydro argued that the evidence suggested that net additions to fixed assets will remain approximately constant at $3.5 billion until about 1986, and then increase to about $5 billion by 1990 and that therefore, it does not appear that the requirement for capital will "slacken" during the 1980s. Given the current target for the debt ratio and the Minister's position on financial soundness, it would not appear responsible to plan simply to maintain the debt ratio for the remainder of the 1980s.

Hydro submitted that its proposal meets the Minister's terms of reference regarding stable rate increases considerably better than the proposals put forward by other counsel.

In regard to the question of rates, Ontario Hydro submitted that the position of OMEA cannot be supported by the evidence and ought to be rejected. The typical direct customer demand at the time of system peak is about 75 percent of its monthly maximum demand while the typical municipal utility takes 90 percent of its maximum demand at the time of the system peak. Hydro argued that there is a very low probability of a municipal utility and a direct customer having an identical load shape and that therefore, it does not make sense to base a customer classification for all customers upon this concern.

In regard to OMEA's submission that under the present system, municipal utilities cannot offer a large user rate comparable to the direct rates, Ontario Hydro argued it is possible to bring about comparability of these rates, whereas OMEA would in effect legislate that direct customers would in all cases have higher rates than large users in municipal utilities.

In response to OMEA and Board Counsel's argument that the customer classification ought to be changed, Ontario Hydro submitted that the present classification is not its final stand on the matter and submitted that it would be premature to make a change in customer classification at this time.

In regard to net income allocation, Hydro agreed that some fine tuning of different asset groups may be desirable and that it intends to examine this subject in further detail. However, Hydro opposed deferring implementation of its present proposals.

With respect to OFA's contention that the cost of 500 KV transmission lines should be allocated on a non common basis since it believes that these lines were built primarily to meet urban demand requirements and that treating them as common costs is therefore unfair, Ontario Hydro submitted that it had testified (as did OFA witness) that all customers benefit from 500 KV lines. It noted that OFA's witness also testified that the farm group receives not only the benefits of low cost nuclear energy, but also the efficiency that 500 KV lines provide.

Hydro disagreed with OFA's statement that a clearer picture of the size of the rural residential rate assistance would be obtained if Hydro did not treat that cost as common but charged it to all customers except rural residential customers. It is Hydro's judgment that it is appropriate to recover the cost of a social program from all customers including those who benefit therefrom.

In regard to Board Counsel's recommendation that the common/non common transformation study be completed in time for the review of 1984 rates, Ontario Hydro pointed out that the study includes a thorough examination of a variety of issues relating to the functionalization and allocation of transformation costs and other non common assets. In addition, it plans to discuss the issue with its customers. It said that it plans to incorporate the conclusions from the review in its proposal for 1985 rates.

In regard to OFA's contention that Ontario Hydro is proposing to allocate specific low voltage lines to the rural retail system for the first time, Hydro submitted that it had first proposed these costs be assessed directly to users of these lines in the 1979 ECAPS hearing, and that the Board had accepted this proposal. As well, OFA's own witness had accepted this logic when he agreed that facilities used only by the rural retail system "should be charged to the rural retail system".

Hydro cited Board Counsel's statement that allocating non common costs to customer classes on a specific basis is incorrect since costs in the non common transformation function continue to be pooled and allocated to users on the basis of demand.

With respect to the fixed cost/variable cost method, AMPCO recommended that Ontario Hydro adopt the approach that, in general, fixed costs be classified to demand and variable costs be classified to energy. Hydro stated that the variable cost classification is not appropriate for Ontario Hydro because the method fails to meet the costing and pricing objectives.

Hydro submitted that the composite peaking plant costing method is an improved variation as it classifies variable costs as energy related, and splits fixed costs between capacity and energy according to the plant factors of the various generating stations. The result is that the higher the capacity factor of the plant, the more of its fixed costs are classified to energy.

With respect to Board Counsel's recommendation that Hydro prepare for comparative purposes, a cost allocation study using the fixed cost/variable cost approach to enhance the Board's understanding of Hydro's proposal, Hydro argued that having rejected the fixed/variable method on the grounds that it doesn't satisfy the costing and pricing objectives, such an analysis for comparative purposes would not be useful.

Hydro submitted that its proposed costing method, in which the average unit cost of all plant is used, is the most appropriate since it avoids the difficult and potentially unstable method of determining which plants are truly excess based on load forecast error, while recognizing that excess plant costs are more than just those associated with peaking plants not expected to be used for domestic load. It argued that additional capacity over and above that forecasted to produce energy is required in order to ensure reliability -- a point highlighted by the fact that Ontario Hydro does not have any stations which are dedicated solely to export.

Hydro submitted that it was improper to choose rating periods only on the basis of a six month summer and a six month winter since costs and load are not always strongly correlated, particularly in a system with significant hydraulic resources. During the spring, for example, costs can go down without any change in load, and conversely, in September when water levels are low, costs can increase without any change in load. Therefore, it argued, rating periods must be based on costs.

Hydro argued that since September costs are lower than the average costs of the other six winter months but higher than the average costs of summer months, moving September to summer will mean higher rates for winter and summer, and that only the rates for September will be lower than those proposed. It submitted that since September is not a high heating load month, the overall effect of such a move is likely to be adverse for the northern customers.

Hydro submitted that the method recommended by Energy Probe for establishing time-differentiated energy is a form of marginal cost based rates and should be rejected on that basis since the Board rejected them in its H.R.5 report.

Mr. Rogers recommended that Ontario Hydro allocate demand costs to rating periods for 1984 using a form of the demand/maintenance method. Ontario Hydro submitted that the demand/maintenance method does not meet the cost tracking objective and, also, has drawbacks in terms of the efficiency objective.

With respect to OMEA's recommendation to postpone time-differentiated charges, it was Hydro's position that, even in today's circumstances of excess capacity, benefits can be obtained by customers shifting loads from the peak to the off peak hours, permitting the mothballing of additional plant. Furthermore, Ontario Hydro pointed out that OMEA's own witness acknowledged this, and that a lower peak demand would occur with time-differentiated capacity charges.

Hydro submitted that the EUE concept did not originate with Ontario Hydro, but rather had been discussed in the literature for years prior to Hydro adopting it for its own use. In regard to the suggestion that EUE had not been approved by any regulatory commission, Hydro pointed out that it adopted the EUE based reliability criterion following recommendations to this effect by the 1976 Select Committee of the Legislature Investigating Ontario Hydro. With respect to its use, Hydro submitted that EUE is one of a family of risk based reliability measures, pointing out that Miss Chown had testified that many utilities use methods similar to EUE. Also, it was noted during testimony that certain utilities are using, and others are proposing to use, risk based measures similar to EUE for assigning capacity related costs to periods.

In regard to OMEA's recommendation that the new rate structure not be implemented until 1984, Hydro pointed out that the rate review process has involved the joint effort of Ontario Hydro, customer representative groups and the Ontario Energy Board since 1976. It argued that it has presented a firm proposal for implementation starting January 1, 1983, nearly seven years after the process was initiated; and that now is the time to act if the electricity rate review process is not to be brought into complete disrepute in the eyes of the public.

Ontario Hydro submitted that OMEA's concern that designing new forms, installing new meters and performing impact studies cannot reasonably be undertaken in time for implementation in 1983, is overstated and is not factually based. Hydro submitted that the municipal utilities do not need to install new meters for seasonally differentiated rates.

Ontario Hydro submitted that the effect of the recommendation that time-differentiated rates be introduced in the month of April would be to reduce the total rate impact in 1983.

The argument that the Board should recommend that Hydro's allocation process continue to allow the municipal utility system to subsidize municipal utilities that are unfairly burdened by specific facility charges associated with changes in common/non common boundaries was rejectd by Ontario Hydro.

It pointed out that those municipal utilities with greater than 5 percent rate increases resulting from costing and pricing changes, are not in fact being subsidized by the municipal utility system. The impact relief will come out of net income and is about $20,000 in total. The impact relief extends to any individual municipal bill in which it considers the impact differential to be unusually large. As well, a review of the cost allocations in the distribution stations specifically serving each of these five municipal utilities may result in a moderation of some of these differentials.

With respect to the allegation that the rate increase will undermine the competitiveness of Ontario's industry in national and international markets, Ontario Hydro submitted that the evidence is that the effect of the rate structure changes is less than 1 percent to the industrial class of customers. As well, Ontario Hydro argued that electricity costs represent only a small part of the total cost of most of Ontario Hydro's direct customers. It also pointed out that under its proposal, there still will be a substantial demand charge giving an incentive to continue efforts to monitor and control peak usage.

Hydro also pointed out that the intention to forward average the capacity/energy split for a period of four years should allay industry concerns about rate stability after 1983.

Ontario Hydro requested that should the Board find that a cost allocation study would be useful to it in reviewing the 1984 rate submission, the level of detail required should be specified.

Hydro submitted that the general criticism of unnecessary complexity in its proposal is unwarranted and ought not to be taken seriously since the principal intervenors have had no difficulty in understanding the proposal and in making constructive criticism to bring about what they perceive as improvements.

Ontario Hydro also pointed out that the statutory responsibility for fixing the revenue requirement and the rates to be charged to customers rests exclusively with its Board of Directors. As well, it argued that the Ontario Hydro Board is under a duty to consider the recommendations of this Board but that the ultimate statutory responsibility lies with its Directors and it is duty bound to exercise its own judgment. Any changes made in the revenue requirement which are brought about by a decision of the Board of Directors after receipt of this Board's report will be reflected in the cost allocation and rates.

In regard to Mr. Rogers' recommendation that some form of public review or examination of municipal rates be undertaken to ensure that the time-of-use features of the bulk rates are being transmitted to the end users in an appropriate way, Ontario Hydro submitted that this is a matter of government policy. However, it pointed out that under the provisions of the Power Corporation Act, the Legislature has given Ontario Hydro the jurisdiction to approve municipal rates.

In conclusion, Hydro submitted that the Ontario Energy Board recommend that the costing and pricing objectives, policies and practices set forth in its submission and as elaborated upon in evidence, be adopted as the proper basis for establishing electricity rates proposed for 1983 for municipal utilities and direct customers.